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GENERAL NOTICE

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INDEPENDENT COMMUNICATIONS AUTHORITY OF SOUTH AFRICA

The Independent Communications Authority of South Africa ("the Authority") is in the process of formulating the Number Plan Regulations in terms of section 4(4) of the Electronic Communications Act No. 36 of 2005 ("the EC Act").

Consequently, ICASA invites the public to make submission on the Numbering Plan Regulations published separately on 4 June 2010. The attached explanatory note is not intended to describe or paraphrase the Regulations but to provide context and discuss points that might otherwise be obscure.



PARIS MASHILE
CHAIRPERSON
DATE 31/05/2010

THE NUMBERING PLAN REGULATIONS: EXPLANATORY NOTE

Though the Regulations are only drafts, for brevity in this Explanatory Note they are called “Regulations” instead of “draft Regulations” and words like “proposed” are omitted.

The Explanatory Note is intended not to describe or paraphrase the Regulations fully but only to provide context and discuss points that might otherwise be obscure.

The headings below correspond to those in the Regulations.

1. DEFINITIONS

Numbers

The definition of ‘number’ covers not only national numbers and short codes but also supplementary codes that contain ‘*’ or ‘#’ though currently the only such codes are the Unstructured Supplementary Service Data (USSD) codes. The Regulations apply to these different sorts of number in different ways, reflecting how far they must have the same uses on all networks.

The Regulations do not deal with signalling point codes and various other identifiers. These can be allocated by the Authority without any risk of impeding competition or failing to protect end-users.

Communications

The definition of ‘communication’ allows the Regulations to be independent of the medium of communication (for audible communications such as calls and visible communications such as messages). The rules for one medium are the same as those for another, though, of course, when calls require announcements (‘audible indications’) messages typically require texts (‘visible indications’).

Tariff bands

Tariff bands (‘premium rate’, ‘higher band’, ‘lower band’ and ‘toll free’) have been introduced to improve tariff transparency, not to regulate tariffs. They allow numbers to provide broad pricing information to consumers without being burdensome to providers. Informally they are as follows:

- Premium rate communications are envisaged as being typically more expensive than conventional fixed or mobile communications because they involve sharing the revenue with the supplier of content (or other services or goods). They include communications where initial calls or messages are not more expensive than off-net mobile charged communications but lead to other calls or messages

(or indeed other services or goods) that are more expensive than off-net mobile charged communications. They are not required to be available on all networks.

- Higher band communications are envisaged as being typically no more expensive than mobile communications.
- Lower band communications are envisaged as being significantly less expensive than mobile communications at current rates.
- Toll free communications are intended to be free of charge to their originators and to be available from all networks.

Other regulations may constrain the tariff bands more strictly.

The Regulations also introduce 'machine originated numbers' in a class of their own. These numbers are intended for input by devices instead of humans and are therefore not limited to ten digits. They are likely to be needed only if machine-to-machine messaging without the use of IP addresses becomes very widespread in mobile networks.

Code types

Because they are familiar, 'type A', 'type B' and 'type C' are used in the Regulations to categorise short codes according to their uses. However, the categories here do not completely match those adopted by some providers. They are as follows:

- Type A codes are intended to be adopted for essential public services. All providers are obliged to make them accessible. The only current examples are the Presidential Hotline code 17737, the emergency code 112 (and possibly some other, older, codes whose current status is unclear) and the Government Directory service code 1020 (required by Section 72(6) of the EC Act).
- Type B codes are intended to be associated with particular providers. Other providers might be obliged, or willing, to make them accessible. For example, if provider X has code 1818, then any other provider Y with a suitable interconnection agreement with X will implement it so that a subscriber of Y dialling 1818 will be routed to a point of interconnection with X's network.
- Type C codes are intended to be available for providers to use as they wish, except that 'harmonised' type C short codes are expected to be used only for 'substantially similar' services.

Number statuses

Every number has one and only one status ('allocated', 'reserved', 'released' or 'protected') at a given time. The status may be changed by an action of the Authority or, in some cases, a provider. Briefly it is as follows:

- 'Allocated' indicates that the Authority has allocated the number for a provider. The number remains allocated until it is withdrawn or returned or the allocation expires. The number must not be assigned (and thereby used for a service) or kept for an internal network purpose except by the provider for whom the number is allocated.
- 'Reserved' indicates that the Authority has reserved the number for a provider. The number remains reserved until it is withdrawn or returned or the reservation expires. The number must not be assigned (and thereby used for a service) or kept for an internal network purpose by any provider.
- 'Released' indicates that the Authority has released the number to providers. The number remains released until it is allocated, reserved or withdrawn from all the providers. The number must not be used for a service by a provider if it has been withdrawn from the provider or requires prior allocation.
- 'Protected' indicates that the Authority has withdrawn the number from all the providers. The number remains protected until it is released to providers. The number must not be used for a service unless every provider is required to offer that service.

Utilisations

The Regulations are specific about which numbers count towards utilisation: they are the numbers that are active or that are kept for internal network purposes. The active numbers are those that have been used during the preceding three months by end-users not acting as providers or resellers. Numbers that have been used exclusively by providers or resellers during the preceding three months are not active by this definition, but they might be being kept for internal network purposes.

Any numbers that have been distributed to a dealer on SIM cards are not being kept for internal network purposes, because they are intended to be input by general end-users after the SIM cards are sold. They therefore do not count towards utilisation.

After Phase 2 of the changes described in the Regulations, machine originated numbers can become available, and are to be preferred, for some internal network purposes.

The current definition of 'utilisation' depends on quantities of active numbers; an alternative definition, which is often more convenient to calculate, depends on quantities of assigned numbers. For various reasons, quantities of active numbers underestimate demand for numbers but quantities of assigned numbers overestimate demand. The numbering audit required by the Regulations provides ways of relating estimates of demand.

Whether a number is active is important in indicating when a number may be re-assigned or taken out of use. However, there can be commercial or social reasons why numbers are not re-assigned or taken out of use as soon as they become inactive.

Numbering plan change phases

The numbering plan changes are regarded as having phases as follows:

- Phase 1 was completed in 2007. Phase 1 entailed changing the international prefix from '09' to '00' and withdrawing local dialling.
- Phase 2 is to be completed on a date ("ZAP2") that is twelve months after the Regulations come into force. Phase 2 entails making available non-geographic numbers and short codes, in order to improve industry development, tariff transparency and consumer recognition.
- Phase 3 is to be completed on a date ("ZAP3") that is to be determined by the Authority and that will be at or after ZAP2. Phase 3 entails changing the first dialled digit from '0' to '6' (for geographic numbers) or from '0' to '8' or '9' (for non-geographic numbers), in order to provide even more capacity for the long term.

2. OBJECTS OF THESE REGULATIONS

The Regulations are intended to align the regulatory framework with the Electronic Communications Act 2005 ("the EC Act") and the Independent Communications Authority of South Africa Act 2000 as amended in 2006 (the "ICASA Act"), and to cater adequately for the newly competitive environment. They consider numbering administration as well as the numbering plan.

Some numbering administration activities are not performed for all kinds of numbers. Many activities involve the Authority and the providers to different degrees. To clarify this, in Figure 1 activities, and the kinds of number on which they are performed, are marked with 'A' if the Authority takes the leading role in them and are marked with 'P' if a provider takes the leading role.

Figure 1: Some numbering activities in the Regulations

Activity	National number	Type A short code	Type B short code	Type C short code	Supplementary code
Release numbers (Regulation 3)	A		A	A	A
Allocate numbers for a provider (Regulation 4)	A		A		
Reserve numbers for a provider (Regulation 4)	A		A		
Withdraw numbers from a provider (Regulation 5)	A		A	A	A
Stop providers from routing to numbers (Regulation 6)	A	A	A	A	A
Facilitate routing to numbers (Regulation 7)	P	P	P		
Return numbers (Regulation 8)	P		P		
Assign numbers to an end-user or reseller (Regulation 11)	P		P	P	P
Keep numbers for internal network purposes (Regulation 11)	P		P	P	P
Change assigned numbers (Regulation 12)	P		P	P	P
Limit information about holders of a numbers (Regulation 13)	P		P	P	P
Show tariffs through numbers (Regulation 14)	P		P	P	P
Ensure consistency in the use of numbers (Regulation 15)		P	P	P	
Maintain numbering records (Regulation 16)	A		A	A	A
Audit numbering use (Regulation 17)	A		A	A	A
Revise usage conditions (Regulation 18)	A	A	A	A	A
Change released or allocated numbers (Regulation 19)	A	A	A	A	A

The numbering plan changes set out in the Regulations are those of Phase 2 and Phase 3. They provide capacity for an increased emphasis on non-geographic numbers over time. However, providers have not suggested the elimination of geographic numbers, and consumer groups are known to value geographic numbers. Accordingly the Regulations do not include the “schedule for transforming the numbering plan to a non-geographic numbering system” envisaged in the EC Act.

The EC Act also mentions inter-operation between numbering and the Internet Domain Name System. This can, of course, be devised without regulatory intervention; however, regulatory intervention might be appropriate to avoid possible anti-competitive effects and ensure confidentiality of user information.

Industry working groups might wish to consider suitable approaches to addressing this issue.

3. RELEASING NUMBERS

This regulation aims to ensure that numbers are not released when there are good reasons not to do so. However, it also aims to preserve flexibility by allowing numbers to change status rapidly from 'protected' to 'released'. (When a number has been released it may be assigned and can only revert to being protected by being withdrawn explicitly from all providers.)

Releasing numbers entails making them available. However:

- Type A short codes are not released. They become available through regulations other than these.
- Releasing national numbers or type B short codes merely makes them available for allocation or reservation for particular providers. They must be allocated before they can be assigned (by the providers to whom they have been allocated). Each such number must be assigned by only one provider at a time and must be used for the same service for all providers that route communications to it.
- Releasing type C short codes or supplementary codes immediately makes them available for assignment by all providers. Each such number may be assigned by several providers at a time and may be used for different services for different providers that route communications to it. Harmonising a type C short code entails ensuring that all providers that use it do so for substantially similar services.

If a provider subsequently breaks the Regulations or the usage conditions for the numbers the Authority can withdraw the numbers from the provider; this might happen if, for instance, the provider uses harmonised type C short codes for services that the Authority does not regard as substantially similar to services from other providers. (The provider is responsible for the uses made by end-users to whom the short codes are assigned by the provider itself or through resellers.)

4. ALLOCATING AND RESERVING NUMBERS

This regulation seeks to ensure that the allocation and reservation processes are simple and require management intervention only to levels justified by the complexity of particular applications. Consequently:

- It arranges the conditions in which applications can be refused roughly according to how far decisions about them should be evident from the applications.
- Where the decisions are not evident within 28 business days applications are refused: there is no distinction between “routine” and “complex” applications or provision for extending the application process by making formal requests for more information.
- When applications using forms are incomplete, decisions about them are evident and the Authority should be able to refuse them soon after submission; then the applicants complete and resubmit them, and the Authority considers them again within 28 business days.
- If applications are granted with specific variations (in the numbers and expiry dates), the Authority can make the principles of those specific variations generally applicable, by publishing them in ‘principles for granting applications for the allocation or reservation of numbers’.

This regulation also states the conditions in which numbers change status from ‘allocated’ or ‘reserved’ to ‘released’ or ‘protected’.

5. WITHDRAWING NUMBERS

The EC Act speaks of “the conditions under which a provider may be required to surrender unused numbers to the Authority for reallocation”, so it uses “surrender” to refer to situations in which numbers are given back because the Authority requires them to be given back. However, elsewhere the EC Act uses “surrender” to refer to situations in which licences are given back voluntarily. To avoid confusion the Regulations do not refer to “surrender” but instead use the terms “withdraw” and “return” that are widely used in discussions of numbering. Thus:

- Numbers are withdrawn from a provider when the Authority requires them to be given back.
- Numbers are returned by a provider when the provider gives them back voluntarily.

The powers of the Authority to withdraw numbers from a provider are likely to be exercised typically when there are numbering plan changes like those of Phase 2 in the Regulations. However, they might also be exercised in any of the following situations:

- The provider is in breach of the Regulations or the usage conditions for the numbers.

- The numbers are not used after they have been allocated for the provider (in the case of national numbers and type B short codes).
- The numbers are not used for publicly promoted services after they have been released (in the case of type C short codes).

The powers of the Authority entail giving due notice, so that providers can bring about orderly replacements of numbers for end-users.

6. BARRING NUMBERS

The powers of the Authority to stop and start the routing of traffic are most likely to be exercised when the use of numbers violates the usage conditions (typically because the charges are too high or the revenues are shared). They are exercised at very short notice, in extreme circumstances; in that respect they differ from the powers to withdraw numbers.

7. ROUTING COMMUNICATIONS TO NUMBERS

Providers are often uncertain about who is responsible for making sure that traffic is routed properly when numbers are brought into use and about the numbers to which traffic must be routed. This regulation eliminates that uncertainty without impinging on the ground typically covered by interconnection regulations. It also notes that the Authority has powers to stop and start the routing of traffic.

8. RETURNING NUMBERS

Providers may return numbers voluntarily (perhaps at the suggestion of the Authority), but if they do so the numbers must not be in use. In practice this means that the numbers are no longer assigned to any end-users of this or other providers.

9. TRANSFERRING NUMBERS

This regulation is confined to saying when numbers are transferred. After a transfer the numbering records need to identify the providers holding the numbers.

10. PORTING NUMBERS

This regulation is confined to dealing with how porting affects the Authority numbering records. It does not describe the situations in which end-users and providers have rights and obligations relating to number portability.

11. ASSIGNING NUMBERS

In effect, assignment of numbers to end-users lets the numbers be used for services; assignment of numbers to resellers is introduced instead of allocation to other providers.

The end-users to whom type C short codes and supplementary codes are typically assigned are content providers (or content aggregators); they may be the providers themselves if the providers supply the content. Consequently, type C short codes and supplementary codes are typically used for content services.

12. CHANGING ASSIGNED NUMBERS

Occasionally providers need to change the numbers assigned to end-users for various reasons. The circumstances governing such number changes are summarised later in the Regulations, in cases when the end-user has requested the change or the Authority intends to withdraw the number. This regulation describes the circumstances in the case when the change is initiated by the provider (to simplify routing of calls to geographic numbers or to ensure that the usage conditions are not violated, for example).

13. LIMITING INFORMATION ABOUT THE HOLDERS OF NUMBERS

End-users have rights to keep their contact details confidential. In particular they may request the concealment of line identities (which are calling line identities and called line identities for communications in general, not just calls).

14. SHOWING TARIFFS THROUGH NUMBERS

Many regulations about premium rate services are likely to be specific to particular kinds of services (with subscription services being particularly liable to misuse in several countries). Some regulations, however, can be general. These relate to the rights of end-users to know what they are paying and to decide whether to pay it.

There are rules that are applicable to all sales of goods or services and that might be put in a code of conduct even though they are already documented in other

regulations. However there are also rules that are applicable just to sales in which end-users are charged through their phone accounts. These sales are special because the payment mechanism is so convenient that end-users can accidentally or impulsively spend too much. This regulation provides such rules.

There is expected to be an audible announcement before the charged-for part of a premium rate call so that callers are not left in doubt about what they will be charged. Similarly there is expected to be a visible text before the charged-for part of a premium rate sequence of messages.

Sequences of communications might start with calls or messages that appear to be inexpensive but lead automatically to other calls or messages (or indeed other services or goods) that are expensive. For instance, a message might be apparently free of charge to the originator but automatically result in the receipt of a reverse charged message or even of many reverse charged messages (containing sports results, say). Such a sequence of communications must be indicated by the use of a premium rate number at its start.

Sequences of communications that involve sharing the revenue with the supplier of contents (or other services or goods) are always treated as premium rate communications. In particular, the recipient of a call who is receiving some of the revenue from the call has an interest in prolonging the call, which must be indicated to the originator through the use of a premium rate number.

Alternatives to these rules are possible. For instance, the Authority might exempt communications costing less than a certain level (for example, ZAR 4 per minute or ZAR 5 per call) from the need to provide a positive acknowledgement but keep the need to provide an announcement (an 'audible or visible indication'). The Regulations do not provide exemptions like this, because:

- They are applicable to calls, not messages, so they do not help much.
- They make rules more complicated and thereby make matters harder for end-users (and sometimes even service providers).
- They introduce numerical limits on money and potentially necessitate more frequency revision of the Regulations.

Toll free numbers are taken to be toll free on all networks.

15. ENSURING CONSISTENT USE OF NUMBERS

Type A codes, by common understanding, are codes of essential public importance, in particular for summoning help in an emergency, which must be implemented in the same way by all networks. The only current examples are the

Presidential Hotline code 17737, the emergency code 112 (and possibly some other, older, codes whose current status is unclear) and the Government Directory service code 1020 (required by Section 72(6) of the EC Act).

Type B codes are intended to be associated with particular providers. For example, if provider X has code 1818, then any other provider Y with a suitable interconnection agreement with X will implement it so that a subscriber of Y dialling 1818 will be routed to a point of interconnection with X's network. It is up to Y to decide on the meaning and handling of subsequent digits. For example:

- If X offers competitive long-distance service then what follows could be full national or international numbers (in a common call-by-call carrier selection arrangement).
- If X uses the code for off-net access to its own customer services provided on type C codes, say on 123, off-net customers dial 1818 123, in which 1818 is the type B code and 123 is the type C code.

A provider might need more than one type B short code if, for instance:

- There are separately branded offerings following a merger.
- There are to be different charging structures (such as pay per call and pay per second) for uses of different type B short codes.
- There are national numbers and short codes beginning with the same digit and type B short codes are to be used both for national call-by-call carrier selection and for access to customer services.

These 'provider selection codes' generalise call-by-call carrier selection codes and thereby eliminate requirements for:

- Different operators to have different codes for similar services if the services are to be reached from off-net.
- Using National Destination Codes (NDCs) for essentially this provider selection function, contrary to network portability and efficient use of long mobile numbers.

Because type B short codes are associated with particular providers that determine their interpretations, they are allocated to the providers by the Authority through the standard application process. Other providers may choose to, or be obliged to, 'implement' these codes by passing calls on to the particular providers to whom the codes have been allocated. The Regulations make no assumptions about the situations in which providers are obliged to 'implement' type B short codes.

Type C codes are not allocated to particular providers. Instead they are released by the Authority for use by all providers, if they wish. The providers may then choose whether to use the codes. Different providers may use the same code for different services, unless the code is 'harmonised', as discussed below. If they use the same code for the same service, either they have separate direct access to the content provider (or content aggregator) to which the code is assigned or they interconnect so that only one of them has direct access but others have indirect access through the interconnections.

Providers tend to use type C codes for common services (such as directory enquiries, credit level checking, fault reporting or voice mail access). If these codes are the same for different providers:

- Customers will not be confused by them when switching providers or taking service from more than one provider.
- The Authority or the providers can easily publicise the codes used for particular services.

The Regulations therefore provide 'harmonised' Type C codes, to encourage providers to use the same short codes for 'substantially similar' services. So if, for example, 123 becomes a harmonised type C code for customer care, then:

- A customer of provider X dialling 123 on X's network will be connected to X's customer care.
- A customer of provider Y dialling 123 on Y's network will be connected to Y's customer care.

Providers have freedom over whether they use harmonised type C short codes but they do not have freedom over how they use the codes: the services for which they use the codes must be similar to the services for which other providers use the codes.

An industry working group, such as a numbering advisory group, could be given the task of specifying the services associated with harmonised type C short codes. To avoid formalising structures, the Regulations imply instead that common sense be used, except where there are disputes or doubts about the services. Where there are disputes or doubts, the Authority will decide on the services (taking into account the objectives listed in the Regulations) perhaps after holding workshops with the relevant providers.

If a provider does not use a harmonised type C short code in a way that the Authority has prescribed then the Authority may withdraw the right to use the code from that provider until the provider agrees to use it as prescribed.

Harmonisation is achieved automatically if only one content provider provides the content for the short code; that content provider must then connect to enough networks, with enough interconnection agreements with other networks, to permit the short code to be useful to enough end-users. This currently happens with short codes beginning with '3' and '4', but the mobile operators do not use interconnections to route the traffic: they all have direct connections with the content providers (or, rather, the content aggregators).

The approach in the Regulations to releasing and harmonising type C short codes is intended to keep the benefits of the current approach to short codes beginning with '3' and '4' in a system where the Authority has ultimate control. It is also applicable to short codes beginning with '1'.

An alternative is for an external agency to allocate and reserve particular numbers for providers. These numbers might be, for example, the short codes beginning with '1', the short codes beginning with '3' and '4', the toll free numbers or the premium rate numbers.

With this alternative (introducing an external agency) the Authority would either outsource the allocation and reservation functions or empower a self-regulatory or co-regulatory organisation to perform the functions. This external agency would be subject to rules ensuring non-discrimination and would report to the Authority regularly. It would either assign the numbers to content providers or identify content providers offering substantially similar content. The content providers (or content aggregators) would then arrange for connections with appropriate providers. The external agency might also have responsibility for other matters, such as preparing a code of conduct or investigating complaints. Part of this model is already in operation for short codes beginning with '3' or '4', where the Wireless Application Service Providers Association (WASPA) represents content aggregators to the mobile operators. The approach in the Regulations suits the working style and legal framework of the Authority better than this alternative (introducing an external agency).

16. MAINTAINING NUMBERING RECORDS

The status of a number is constrained as follows:

- The status can change to 'allocated' only if it is 'released' or 'reserved' and the number is not a type A short code, a type C short code or a supplementary code.
- The status can change to 'reserved' only if it is 'released' and the number is not a type A short code, a type C short code or a supplementary code.
- The status can change to 'released' only if it is 'protected', 'allocated' or 'reserved' and the number is not a type A short code.

- The status can change to 'protected' only if it is 'released', 'allocated' or 'reserved'.

17. AUDITING NUMBERING USES

The request for information, and the numbering audit data, are in line with section 4(3)(g) of the ICASA Act. They are sufficient to allow the Authority to examine:

- Current and projected utilisations for all numbers allocated to a provider.
- The usage of all type C short codes by end-users to whom the short codes are assigned by the provider itself or through resellers.

In particular, until its timing is known, the Authority must examine annually the need for, and timing of, Phase 3 of the numbering plan changes.

18. REVISING USAGE CONDITIONS

Usage conditions applicable generally are given in the Regulations. However, additional usage conditions may be needed, especially for premium rate numbers. Such usage conditions belong in a different document, which may need more frequent revision and much more detail than these Regulations.

The following documents are relevant to the formulation of these additional usage conditions:

- The mobile cellular service providers have a memorandum of understanding identifying ceilings on charges for the use of short codes beginning with '3' and '4'. (It also deals with some supplementary codes, but in the Regulations supplementary codes are not used for premium rate services so further ceilings on charges are unnecessary.)
- WASPA has a code of conduct for the use of short codes beginning with '3' and '4'. This is supplemented by various other WASPA documents offering advice and guidance to WASPA members on acceptable conduct.

The Regulations are designed to allow these documents to be used by the Authority in the development of legally binding usage conditions; for instance, they might be adapted to apply to all premium rate numbers, not just short codes beginning with '3' and '4'. Any such uses would be subject to the usual processes of the Authority for developing regulations.

19. CHANGING RELEASED AND ALLOCATED NUMBERS

The process for making numbering plan changes in these Regulations is appropriate to Phase 3 of the numbering plan changes. It is not necessary for changes that do not change numbers that have been allocated or released already. For instance, a decision to use '019' to signify Greater Johannesburg or to introduce short codes beginning with '2' would not need 12 months' notice (though it would still require notification to the ITU TSB and, of course, amendment to the Regulations).

20. FEES

This regulation provides guidelines on how to set fees but does not lay down levels of fees.

Fees for administrative costs tend to be set according to the requirements of annual budgets, so they might vary more frequently than would be appropriate for regulations like these.

21. COMPLAINTS

This regulation identifies relevant existing powers of the Authority. The process and procedures for resolving subscriber complaints are provided in sections 17C to 17F of the ICASA Act.

22. FUTURE NATIONAL NUMBERS AND SHORT CODES

The numbering plan changes are arranged in Phase 1, Phase 2 and Phase 3. Phase 1, which has already taken place, consisted of changing the international prefix from '09' to '00', and requiring full national numbers to be dialled even for apparently local calls. Although Phase 1 has already occurred, it is mentioned here for completeness and to provide context.

An intention of the Phase 2 changes is to rationalise the numbering of premium rate services, so as to improve tariff transparency and consumer confidence, and ultimately industry development. (Considerable support has been expressed for such an initiative.) A side benefit is expected to be clearing short codes beginning with '1' that are used for premium rate services. The Phase 2 changes also formalise the treatment of short codes beginning with '3' or '4' and provide many more non-geographic numbers, in advance of the Phase 3 changes.

The Phase 3 changes are very similar to some discussed by the industry in the last few years. They provide a transition to a numbering plan with ten times the capacity

of the current one. However, they might never be needed and their timing is uncertain. There are three main options for their timing:

- Implement Phase 3 as **early** as possible. This would be effectively at the same time as Phase 2, so that there would be a single set of changes within the next couple of years. During this period there would be a lot of cost, disruption and distraction, and probably confusion about how the changes relate to one another, but thereafter there would be no more major changes.
- Implement Phase 3 at a planned time in the **medium** term, say in 5 years' time. This allows for the implementation to be properly planned, and to take place after current industry issues like interconnection have been sorted out. It also reduces the future decision burden for the Authority.
- Implement Phase 3 as **late** as possible. This postpones and probably reduces the pain of the major changes, but it requires the Authority to monitor regularly the utilisation of numbering space and decide if and when the major changes are needed. They may never be needed, in which case the cost, disruption and distraction will be avoided. (This is the approach being used for expansion of the North American Numbering Plan: effectively there is a contingency plan to expand from ten to twelve digits, which each year has receded another year into the future.)

The Regulations provide for the Authority to choose and implement the timing of the Phase 3 changes with appropriate notification to the public; this permits implementation in the short term, the medium term or the long term.

There are many possible variants of these numbering plan changes. In one such, the Phase 2 changes are varied so that new non-geographic numbers begin with '09' (instead of with '9', as in the Regulations) and have eleven digits (unless they are machine originated numbers). Doing this provides many more non-geographic numbers without introducing the initial digit '9', at the cost of having a difference in number lengths. This difference could still be eliminated subsequently by varying the Phase 3 changes so that numbers beginning with '07' and '08' are replaced by the corresponding numbers beginning with '097' and '098'; another variant can also remove the initial digit '0', to give the same numbering structure as the Phase 3 changes.

23. PREFIXES

After the Phase 3 changes '0' is not used as the national prefix. Instead numbers dialled from inside the Republic begin with '6', '8' or '9'. When dialled from abroad numbers begin with '6', '8' or '9' after the country code, '27'.

24. GEOGRAPHIC NUMBERS

The changes to geographic numbers relate purely to clarifying the meanings of the associated areas and replacing their first digit in due course. They do not prescribe a move to non-geographic numbers; over time the importance of non-geographic numbers will rise, but for the present geographic numbers are still useful to consumers and will be kept.

Geographic numbers are still useful to consumers because they let callers work out the prices of calls from other geographic numbers and the approximate locations of called parties. However callers do not use them to get precise locations of called parties (for which postal addresses are needed). Also, the locations might be associated only loosely with the called parties (when there is call forwarding or call redistribution for direct inward dialling, for example). The intention in the Regulations, then, is to keep the geographic significance of geographic numbers, as far as it relates to prices of calls and locations of callers. Call forwarding, over IP and other networks, is acceptable provided that it does not increase prices of calls outside those envisaged for lower band numbers.

The boundaries of the areas associated with geographic numbers have been defined by network operators in maps for their own purposes. These boundaries are useful guides, but providers are not obliged to adhere strictly to them; wireless access operators, for instance, might be hampered significantly by having to do so. Instead, providers are expected to use the areas described by Table 3, which are intended to specify the locations of callers to an extent that is useful to users and practicable for providers.

If something is stated to be 'Undetermined' in the Regulations, changing it requires amending the Regulations. For instance, '019' must not be used at the start of calls to the Johannesburg region without amending the Regulations to permit doing so; the amendment would entail replacing the relevant occurrence of 'Undetermined' in Table 3 by 'Johannesburg region'. This process is intended to ensure that:

- Industry development is not hampered by uncertainty about what is permitted.
- Proposed changes have the benefit of public discussion.

Details in the Johannesburg region below the level of the initial digit sequence (such as '011') are not stated in the Regulations. In fact each such number beginning with '011' has as its status 'allocated', 'reserved', 'released' or 'protected', which must be recorded in the Central Numbering Data Base. The status of such a number can be changed by processes such as allocation and reservation without amending the Regulations.

25. NON-GEOGRAPHIC NUMBERS

The changes to non-geographic numbers are intended to help users to estimate tariffs correctly. Currently there are many different tariffs, especially for different subranges of '086' and '087'. This is likely to be hampering the development of the industry, by reducing the willingness of consumers to dial such numbers.

Tables 2 and 4 describe the association between initial digit sequences and services in 2009 much as it was in the regulations published in the Government Gazette in 2006. In fact there have been developments. For instance:

- '075' numbers have been earmarked for particular operators but never allocated.
- '085' numbers were intended for underserved area services, but there are now no providers licensed specifically for underserved areas.
- '088' numbers were intended for paging and future services calling but are not used only in this way; for example, they are used for fax numbers (and sometimes for voice numbers). Really, fax numbers do not deserve number ranges of their own, especially when many faxes are sent to fax machines attached to conventional voice lines. Also, fax is being gradually superseded by email (and paging has been largely superseded by mobile telephony). Many other '088' numbers have been allocated for "fixed mobile" services but have not been used.
- '089' numbers were intended for mass calling but are not used only in this way; for example, they are used for voice and fax numbers for sales of television news programmes. However, many are unused and other are just used for internal network purposes.

Further information might lead to changing Table 4 so that, for example, '088' numbers become lower band numbers in the Phase 2 changes, just like '086', '087' and '089' numbers.

The Regulations include no substructure for the new '900' premium rate number range. If desired, systematic migration rules could be used for some existing number blocks. For example:

- '0867 123 456' could map to '900 7 123 456', and so on.
- '083 900 1234' could map to '900 083 1234', and so on.
- '082 1234' could map to '900 820 1234' and so on.

The provider of a service that will no longer be allowed on its current number because it is classified as premium rate can choose:

- To stop offering the service.
- To change the tariff and/or end any revenue sharing arrangement so that the service can stay on its current number.
- To change the number for the service by the Phase 2 deadline.

26. SHORT CODES BEGINNING WITH '1'

The broad intentions for short codes beginning with '1' are to:

- Ensure that the codes are not used for premium rate services or internal network purposes.
- Return the codes to the overall control of the Authority.
- Allow existing appropriate uses (by more than one provider or of wide public interest) to continue.
- Rationalise uses of the codes so that, in time, similar applications come to be grouped together on similar codes.

The lengths of the codes are intended to accommodate existing usage and possible future usage; for example, in some countries there are now type A short codes having six digits and beginning with '116', where the remaining three digits identify substantially similar help line services in different countries.

Tables 5 and 6 in the Regulations are based on the information supplied by providers before the numbering audit. In particular, the motivations for the markings in Table 6 are as follows:

- Codes are unshaded and unmarked because no provider identified uses of them.
- Codes are light shaded and marked with 'L', though at least one provider identified uses for them, because:
 - Premium rate services should not use short codes beginning with '1'.
 - Internal network purposes need not occupy valuable short codes.

- The codes are marked as 'Not Allocated' in "A call for number audit" published in the Government Gazette number 32107 dated 6 April 2009.
- Only one provider identified uses of the codes and those uses do not appear to be of wide public interest.
- Codes are dark shaded and marked with 'D' because more than one provider identified uses of them or some uses (other than for premium rate services or internal network purposes) appear to be of wide public interest.

Further information might lead to the revision and refinement of Tables 5 and 6. For instance, in Table 5:

- More codes beginning with '10' might be marked 'A'.
- All codes beginning with '16' might be marked with 'B'.
- No codes beginning with '17' might be marked with 'C'.
- More codes beginning with '14' might be marked with 'C*'.

The Regulations identify the harmonised type C codes. However, the Authority expects that usually providers will determine the services provided by the codes; only if the providers fail to agree will the Authority do so (without needing new regulations). The Regulations are therefore not suitable places for identifying the services provided by harmonised short codes. However, to stimulate discussion, Figure 2 describes some possible such services.

Figure 2: Possible services for harmonised codes

Short code	Service
121	Voicemail setup and retrieval
123	Customer care (including fault reporting)
124	Stolen phone reporting
141	Prepaid recharge
1023	Human directory enquiries
1026	Time
10118	Electronic directory enquiries

The Regulations require that some type C short codes beginning with '1' are harmonised and that they be used enough to justify continued release.

When the Regulations come into force all type B and many type C short codes beginning with '1' are protected. (These type C short codes comprise those that are unshaded and unmarked in Table 6.) Other type C short codes become protected in the Phase 2 changes, if they are withdrawn from all providers. (These type C short codes include all that are light shaded and marked with 'L' in Table 6, and

perhaps some that are dark shaded and marked with 'D' in Table 6.) the Authority may release such short codes subsequently. However, the Authority may withdraw them from providers if it has evidence that they are being used contrary to the Regulations.

27. SHORT CODES BEGINNING WITH '3' OR '4'

The Regulations require that all short codes beginning with '3' or '4' are harmonised.

When the Regulations come into force all short codes beginning with '3' or '4' are released. However, the Authority may withdraw them from providers if it has evidence that they are being used contrary to the Regulations (because, for example, they are not used enough for publicly promoted services). In particular, some withdrawals may be needed by the time of the Phase 2 changes, because the codes are said to be in short supply.

Until the current use of short codes have been formalised adequately, introducing short codes beginning with other digits could be counter-productive. (One possibility that has been discussed is to make all type B short codes begin with '2'.) In the longer term, there could be other ranges of short codes if the Phase 3 changes are never needed.

28. SUPPLEMENTARY CODES

The Regulations require that supplementary codes are not used for premium rate services. This is largely to reduce the burdens of monitoring such services and clarifying the tariff ceilings that apply to them (according to the memorandum of understanding by the mobile operators). By contrast with harmonised type C short codes, supplementary codes are not expected to be used for similar services on different networks.

When the Regulations come into force all supplementary codes are released. Again, the Authority may withdraw them from providers if it has evidence that they are being used improperly.

29. PHASE 2 NUMBER CHANGES

The Phase 2 changes are intended to improve tariff transparency. In general they do not affect ordinary subscriber numbers (whether fixed or mobile) but only numbers for special and value-added services. These are currently very varied in form (starting with '1', '0821', '0831', '0880', '086x' with x greater than 1, or even '087xyz' in some cases, for example), with low consumer awareness of associated

tariffs. The aim is to bring them into a few common and easily recognisable forms, with simple tariff rules.

The existing variety means that no one systematic migration rule can be applied to these numbers. This should not create major problems, because (unlike ordinary subscriber numbers), these numbers are usually called not from a personal record but in response to a promotion, and the number promoted can just be changed. For a transitional period, a changed number announcement may also be provided on the old number. The cost of providing such announcements should be fairly low, in keeping with the relatively low quantity of services needing the facility (compared with, for example, individual announcements for all subscribers).

To achieve the withdrawal of numbers the Authority will need to introduce new numbers. For instance, if the short number '082 1234' is currently intended to represent a particular service ('1234') of a particular provider ('082') then, given that such short numbers are to be withdrawn in the Phase 2 change, it might be replaced by '1820 1234', where '1820' is a type B short code and '1234' is a type C short code; the Authority would need to release '1820', allocate '1820' to the particular provider and release '1234'. Similar remarks apply, for example, to fax numbers beginning with '0880': they have thirteen digits and are said to treat '088' much as a type B short code.

30. PHASE 3 NUMBER CHANGES

The Phase 3 number changes have a complication due to toll free numbers. As toll free numbers beginning with '080' are replaced by the corresponding numbers beginning with '800', if there are any existing toll free numbers beginning with '0800' that are internationally accessible they may clash with replacement numbers during a period of parallel running. They should therefore be replaced by individually chosen '080' numbers before the Phase 3 changes.

31. CONTRAVENTIONS AND PENALTIES

The level of penalty is set by reference to the penalty applicable under the ICASA Act.

32. REVIEW

A review occurs annually, along with the numbering audit.

33. SHORT TITLE AND COMMENCEMENT

The Regulations are about numbering administration as well as the numbering plan, but are named to match the previous regulations.

The date when the Regulations come into force influences the schedule for the numbering plan changes.

34. REPEAL OF OTHER REGULATIONS

The previous regulations are repealed when the new ones come into force.

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