

## TELECOMMUNICATIONS NUMBERING ADVISORY COMMITTEE

### Numbering Arrangements for IP Telephony Services (II)

At the 56<sup>th</sup> Telecommunications Numbering Advisory Committee meeting held on 7 July 2005, the Members discussed the NAC Paper No 1/2005 on whether 8-digit numbers or 10-digit numbers should be allocated for Class 2 IP Telephony services and other related numbering issues. Besides, both fixed and mobile network operators were requested to conduct thorough checks on their networks and supporting systems and to confirm whether 10-digit subscriber numbers could be supported.

#### **Members' Views and Comments**

2. Eighteen written comments with divergent views have been received. Some network operators confirmed that they could cope with 10-digit subscriber numbers provided that they were given 6 to 12 months to make necessary modifications whereas some operators informed OFTA that they would have problems to handle 10-digit numbers. Some respondents also advised that overseas carriers / administrations might need 3 to 6 months' prior notice for making necessary changes to cope with the opening up of a new number level for Class 2 services.

#### **TA's Consideration and Recommendation**

3. Having considered the comments and views from the Members and the observers, the TA considers that a lead time of one year or more is required for network and logistics changes to cater for the introduction of 10-digit subscriber numbers for Class 2 services. To avoid undue delay in introducing the IP Telephony services, the TA recommends that 8-digit numbers should initially be allocated for Class 2 services. The detailed recommendations regarding the numbering arrangements for IP telephony services are given below.

- a. *8-digit '5(7-8)' Numbers for Class 2 Services*  
Two million 8-digit subscriber numbers with prefixes '5(7-8)' will initially be allocated for Class 2 services. To ensure that sufficient number blocks are available for Service-based Operators (SBOs) for Class 2 services, the size of each number block in these number levels (i.e. '5(7-8)') will be reduced to 10,000.
- b. *Changeover to Longer Digit Numbers with the Prefix '59'*  
As there is some uncertainty about the demand of Class 2 numbers, proposing a firm schedule for switching the Class 2 numbers over from 8-digit to longer digits is neither feasible nor advisable at this point in time. Instead, OFTA

will closely monitor the demand for the 8-digit Class 2 numbers. If 8-digit numbers are depleted at a relatively fast rate, the TA will consider allocating 10-digit numbers instead (e.g. allocation of 10-digit numbers with prefix '59') for Class 2 services. An advance notice of a minimum period of 12 months will be given for necessary network enhancements.

c. *Grandfathering Arrangement*

To avoid inconvenience to end users, 8-digit Class 2 numbers assigned prior to the change-over to 10-digit numbers will be grandfathered i.e. 8-digit '5(7-8)XX XXXX' numbers and 10-digit '59' numbers for Class 2 services will co-exist after the change-over.

d. *Eligibility*

As suggested in the NAC Paper No 1/2005, SBOs for Class 1 and Class 2 services may apply for telephone numbers if (i) they provide or intend to provide services to the general public and any local customers; and (ii) provide their own service platform and business support systems.

e. *Utilisation Rate*

It was proposed earlier that FTNS / FC licensees and Class 1 / Class 2 would need to achieve a minimum utilization rate of 60% of the number allocated before they apply for allocation of additional number blocks. Members have no consensus view on the proposal. Considering that the TA will introduce smaller number blocks of 10,000 numbers in size for IP telephony services and that the licence fee formula of the Unified Carrier Licence will include a fee element for each telecommunication number assigned, the TA has decided that SBOs for Class 1 and Class 2 services should be permitted, for the time being, to apply for additional subscriber numbers if they have achieved a minimum utilisation rate of 50% with the number blocks already allocated to them. OFTA may initiate a review on the appropriate minimum utilisation rate(s) for Fixed Telecommunications Network Service / Fixed Carrier licensees and SBO licensees when the need arises.

f. *Other Numbering Issues*

SBOs for Class 1 and Class 2 services are eligible to apply for all types of the numbering resources which are assigned to the ETS licensees. SBOs for Class 1 services will be allocated network numbers with the prefix '4' in order to support number portability. SBOs for Class 1 and Class 2 services could assign Direct-Dialling-In numbers in multiple of 100 to cater users' operational needs in accordance with the actual number of installed extensions. The basic quantum of 100 is chosen to facilitate the corporate customers to port across fixed telecommunications services and IP telephony services.

4. A draft of the 'Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan' incorporated the above recommendations are attached for the consideration of the Members.

5. According to the current practice, OFTA will shortly notify the overseas carriers / administrations of the opening up '5(7-9)' numbers for IP Telephony service, which is a major change of the Hong Kong numbering plan, via the International Telecommunication Union.

### **Advice Sought**

6. The TA wishes to solicit views and comments from the Members on the above recommendations.

**Office of the Telecommunications Authority**  
**17 October 2005**

## **Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan (Cap. 106)**

### **Background**

Pursuant to paragraph (3)(b) of Section 32F of the Telecommunications Ordinance (Cap. 106), the Telecommunications Authority (TA) may issue Codes of Practice relating to the use of numbers and codes in the numbering plan, and any Code so issued may include provisions relating to number portability. Paragraph (3)(e) of the same section further provides that the TA may delegate the administration of the numbering plan or a part of the numbering plan to any person.

2. In January 1994, the TA issued a report entitled “A New Numbering Plan for Telecommunications Services in Hong Kong”. The report discussed, among other things, the principles of allocating and assigning numbers and codes from the numbering plan. Annex 1 to the report gave a detailed description of the numbering plan. Since its release, the report has served the telecommunications industry and the TA as a definitive guideline well. However, with the rapid development, the report needs an update in order to provide accurate and timely guidance to the industry. For obvious reasons, this document will have to continue to be updated at frequent intervals.

3. In this connection, the TA issues this Code of Practice for the purpose of providing guidance to the telecommunications network operators and paging service operators, to whom the TA has delegated the administration of part of the numbering plan. This Code of Practice will contain the necessary guidance principles for these operators to follow when assigning telecommunications numbers and/or codes to end customers.

### **Guiding Principles**

4. In the drawing up of the new numbering plan for Hong Kong in January 1994, the TA has adopted the following guiding principles -

- (a) the numbering plan should be able to meet the future growth and requirements in telecommunications for at least the next 15 years i.e. up to end 2009;

- (b) the numbering plan should be user friendly and be fair and equitable to all providers of telecommunications services; and
- (c) the numbering plan should be able to adapt to new technologies and services in future.

### **Allocation and Assignment**

5. There are two levels of handling telecommunications numbers and codes: allocation and assignment -

- (a) Allocation is the distribution of numbers and codes by the TA to the telecommunications network operators and paging services operators (hereafter collectively referred to as “operators”) on a block-by-block basis; and
- (b) Assignment is the actual designation of individual numbers and codes to end customers. In most cases, this will be entrusted by the TA to the operators providing the services.

### **Allocation Principles**

6. In developing the allocation principles, the TA will ensure that the following requirements are met -

- (a) consumer interests should be properly taken care of;
- (b) competition is to be promoted;
- (c) allocations should encourage innovation in the provision of telecommunications services;
- (d) there is to be efficient use of numbers and codes; and
- (e) the allocation procedures should be fair and technically and economically feasible.

7. The approach taken by the TA in his management of the Hong Kong Numbering Plan is as follows -

- (a) the TA should ensure that number allocations are consistent with the numbering and code plan and other relevant regulatory instruments;
- (b) the TA should deal with number and code allocation requests in a timely manner;
- (c) the TA should be responsive to applicants in providing information assistance in relation to number and code allocation requests;
- (d) the TA should ensure that number and code allocations foster user convenience and ease of understanding and use;
- (e) the TA should be fair and consistent in its application of the allocation procedures; and
- (f) the TA should promote stability for end users in the administration of number and code allocation procedures.

8. The principles and application procedures for the allocation of numbers and codes for the fixed telecommunications network services, mobile services and paging services are given in Appendix 1.

### **Assignment Principles**

9. For efficient assignment of telecommunications numbers and codes to end customers, operators should observe the following principles

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- (a) assignment of numbers and codes by operators to end customers and their service offerings must comply with this Code of Practice and the statements issued by the TA related to the numbering issues. For ease of reference, a summarised description of the Hong Kong Numbering Plan and classification of short codes are given in Appendices 2 and 3 respectively. The assignment principles of telecommunications numbers for public non-exclusive

telecommunications services (PNETS) are given in Appendix 4. The assignment principles of fixed network numbers to Direct-Dialling-In (DDI) services are given in Appendix 5. The assignment principles of numbers / codes to mobile virtual network services are given in Appendix 6. The assignment principles of numbers to IP telephony services are given in Appendix 7;

- (b) operators to whom the TA has delegated the administration of the assignment process must treat customers equitably and fairly;
- (c) operators will maintain a record of the numbers and codes under their administration in accordance with the TA's guidelines;
- (d) operators should recover immediately any numbers or codes which have been given up by customers leaving the service (except for number portability requirements) or which are no longer used for a particular service. The recovered numbers/codes should be recycled for use within six months; and
- (e) unless otherwise specified in this Code of Practice or specifically approved by the TA, all numbers and codes in the Hong Kong Numbering Plan should allow "any-to-any communication" i.e. a calling party can reach a called party by dialling the number or code of the called party, irrespective of the networks (mobile and fixed inclusive) used by the calling party and the called party and irrespective of whether the calling party is calling from overseas or from a local station.

Office of the Telecommunications Authority  
xx October 2005

## Appendix 1

### **Guidance Notes for the Submission of Application for the Number Block(s)/Codes for the Fixed Network Services, Mobile Services and Paging Services in Hong Kong**

#### **1. Introduction**

- 1.1 Application should be submitted to the Telecommunications Authority (TA) at the following address:

The Telecommunications Authority  
Office of the Telecommunications Authority  
29/F Wu Chung House  
213 Queen's Road East  
Wanchai  
Hong Kong.

- 1.2 Enquiries concerning these Guidance Notes should be addressed to:

Senior Regulatory Affairs Manager  
(Regulatory 21)  
Office of the Telecommunications Authority  
Telephone No.: 2961 6349  
Facsimile No. : 2803 5112

- 1.3 The Telecommunications Authority is not bound by this document to grant a number block or code to any applicant.

## 2. General Principles

- 2.1 Processing of an application will take a maximum of 12 working days from the date of receipt of the application complete with all the required documents and supporting materials.
- 2.2 The successful applicant will be invited for a balloting session to draw the required type of number block(s)/code(s) from a pool which is pre-determined by the TA.
- 2.3 The TA has adopted the first-come-first-served principle whereby the priority of an applicant applying for either the fixed network, [Class 2 IP telephony](#), mobile or paging number block(s)/code(s) will be determined from the date and time when his application, complete with all the required documents and supporting materials, is received by the TA.
- 2.4 If the whole block of allocated number(s) or the code(s) is not implemented in the network within 12 months from the date of approval, it will automatically be withdrawn by the TA.
- 2.5 If an application is rejected by the TA, the applicant may appeal by filing a formal written request to the TA through registered post. Within 14 working days from the receipt of the request, the TA shall inform the applicant of the result of the appeal and the reasons for the determination.

### **Interim Arrangement for Allocation of Special Number Blocks for Paging Services (para. 2.5bis)**

- 2.5bis Any paging operator may apply, with the required supporting justifications in accordance with the requirements given in clause 2.12 -2.14, for some preferred paging number blocks from the TA based on the first-come-first-served principle. Provided that the preferred paging number blocks are available in the numbering plan and the justifications put forward are accepted by the TA, the successful applicant would be granted the required number blocks directly by the TA without the need to go through the balloting procedures as specified in clause 2.2 above. However, the successful applicant has to donate to charity (the Hong Kong Community Chest) an amount of HK\$100,000 if the total size of special number blocks requested per occasion is over 100,000 numbers or HK\$50,000 if the total size of special number blocks requested per occasion is less than 100,000 numbers. Within one week after the allocation is done, the TA would announce the allocation and the donated sum on OFTA's home page [URL address: <http://www.ofa.gov.hk>]. The TA will propose a replacement of the procedure in the "Special Number Arrangements" and after the required legislations are in place, this interim arrangement would then be cancelled automatically.

### **For Fixed Network Services (para. 2.6-2.9(B))**

- 2.6 If the applicant is to launch a new fixed network service, he needs to give full technical and operational details before the application for the required numbers is considered.
- 2.7 For additional numbers for the existing basic telephone service <sup>(Note)</sup>, the applicant should have achieved a minimum utilisation rate of 50% with the number blocks already allocated to him. Otherwise the applicant needs to give justification. For successful application, the TA will allocate 50K numbers from a 100K block. The rest of the 50K numbers will be reserved for that applicant for his future expansion.
- 2.7(A) For additional numbers for the personal numbering service, the applicant should have achieved a minimum utilisation rate of 60% with the number blocks already allocated to him. Otherwise the applicant needs to give justification. For successful application, the TA will allocate 50K numbers from a 100K block. The rest of the 50K numbers will be reserved for that applicant for his future expansion.
- 2.8 For additional numbers for information services or public non-exclusive telecommunications services (PNETS), the applicant should have achieved a minimum utilisation rate of 60% with the number blocks already allocated to him. Otherwise the applicant needs to give justification. The TA will allocate 100K or 10K numbers respectively to the successful applicant.
- 2.9 For additional numbers for freephone services, the applicant should have achieved a minimum utilisation rate of 70% with the number blocks already allocated to him. Otherwise the applicant needs to give justification. The TA will allocate 1K numbers to the successful applicant.
- 2.9(A) For additional 7-digit “18” short codes for services of high volume of traffic, the applicant should have achieved a minimum utilisation rate of 80% with the block or blocks of “18” short codes already allocated to him. Otherwise the applicant needs to give justification. The TA will allocate 1K block of the 7-digit “18” short codes to the applicant.
- 2.9(B) For any application for 5 or less digits “18” short code(s), the applicant should submit the application to the TA directly or through the FTNS operator providing the fixed network services. The application should enclose all the necessary supporting justification and information for using the required short code(s). If the application is accepted and approved by the TA, the applicant will then be assigned directly with the

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<sup>(Note)</sup> In this guideline, basic telephone services refer to direct exchange line, facsimile line, centrex line and direct-dialling-in line, etc.

required “18” short code(s). In considering the application, the TA will use the following criteria -

- (a) There is a strong public demand and interest for the service in the community;
- (b) The service provider must be a public organisation, utility company or non-profit making entity;
- (c) The service must be of a type that generates extremely high volume of traffic which involves mass calling. The applicant must obtain the support from the relevant fixed network services providers who provide the required network service to the applicant; and
- (d) The service provider must be equipped with sufficient equipment and manpower resources in order to provide a satisfactory service.

**For Mobile Services (para. 2.10- 2.11)**

- 2.10 If the applicant is to launch a new mobile service, he needs to give full technical and operational details before the application for the required numbers is considered.
- 2.11 For additional numbers for existing mobile service, the applicant should have achieved a minimum utilisation rate of 60% with the number blocks already allocated to him. Otherwise the applicant needs to give justification. For successful application, the TA will allocate a 100K number block to the applicant.

**For Paging Services (para. 2.12-2.14)**

- 2.12 If the applicant is to launch a new paging service, he needs to give full technical and operational details before the application for the required numbers is considered.
- 2.13 For additional numbers for the existing automatic/secretarial service, the applicant should have achieved a minimum utilisation rate of 45% with the number blocks already allocated to him. Otherwise the applicant needs to give justification. For successful application, the TA will allocate 20K numbers from a 100K block. The rest of the 80K numbers will be reserved for that applicant for his future expansion.
- 2.14 For additional numbers for the existing operator-assisted service, the TA will consider whether the traffic of the installed telephone lines will justify additional number block(s). If the application is successful, the TA will allocate one 1K block for calling and one 1K block for replying.

**For IP Telephony Services (para. 2.15-2.16)**

**2.15 If the applicant is to launch a new IP telephony service, he needs to give full technical and operational details before the application for the required numbers is considered.**

**2.16 For additional numbers for the existing IP telephony service (Class 1 and Class 2 services inclusive), the applicant should have achieved a minimum utilisation rate of 50% with the number blocks already allocated to him. Otherwise the applicant needs to give justification. For successful application, the TA will allocate 10K number block to the applicant.**

**International Signalling Point Codes (ISPC) (para. 2.152.17-2.162.18)**

~~2.152.17~~ External facilities-based and service-based operators (including service-based operators for IP telephony services) who establish direct C7 signalling links and interconnections with overseas carriers are entitled to apply for and use ISPCs.

~~2.162.18~~ For additional ISPCs, the external facilities-based and service-based operators have to show that all the assigned ISPCs have already been fully utilised and that they have new or additional requirements for ISPCs. If the application is considered justified, the TA will then assign additional ISPCs to them.

**Signalling Point Codes (SPC) (para. 2.1719-2.202.22)**

~~2.1719~~ Network operators (mobile network operators and fixed network operators which include external facilities-based operators), ~~and~~ external service-based operators and service-based operators for IP telephony services operating a C7 signalling network or switch are entitled to apply for and use SPCs. Unless prior approval from the TA is obtained, the SPCs should be solely used by the operator to whom the SPCs have been assigned.

~~2.1820~~ The TA will assign initially 64 SPCs to a newly licensed network operator (either a mobile network operator or fixed network operator which may be an external facilities-based operator) who has a need to operate a C7 signalling switch/network with local carriers.

~~2.192.21~~ The TA will assign initially 8 SPCs to a newly licensed external service-based operator, ~~or~~ mobile virtual network operator or service-based operators for IP telephony services who has a need to operate a C7 signalling switch/network with local carriers.

~~2.202.22~~ For any additional requirements of SPCs, the applicant should have achieved a minimum utilisation rate of 90% with the SPCs already assigned to it before application for the additional SPCs may be considered. For each successful application, the TA will assign 64 additional SPCs to a network operator and 8 SPCs to an external service-based operator, ~~or~~ mobile virtual network operator or service-based operators for IP telephony services respectively.

**Data Network Identification Code (DNIC) (para. ~~2.212.23~~ - ~~2.212.23(A)~~)**

~~2.212.23~~ Only operator operating a packet-switched public data network with X.75 interconnection with other public data networks or fixed network operator operating Public Switched Telephone Network or Integrated Services Digital Network interworking with public data networks is entitled to apply for and use a DNIC.

~~2.212.23(A)~~ Applicant should give full technical and operational details before the application for a DNIC is considered. For successful application, the TA will assign one DNIC to the applicant.

**Calculation Method of Utilisation Rate (para. ~~2.222.24~~ - ~~2.222.24(A)~~)**

~~2.222.24~~ The calculation method used by the TA in calculating the utilisation rate of the number block(s)/code(s) (except for mobile numbers) already allocated to an applicant is -

$$\text{Utilisation Rate} = (A + B) / (\text{total capacity of allocated number block(s)/code(s) for the service(s)}) \times 100\%$$

where A = total capacity of number block(s)/code(s) assigned to active customers at the time of application

B = total capacity of number block(s)/code(s) reserved for inactive customers who have left the service(s) for the last 6 months calculated from the date of application

~~2.222.24(A)~~ The calculation method used by the TA in calculating the utilisation rate of mobile numbers already allocated to an applicant –

$$\text{Utilisation Rate} = (A + B + C) / T \times 100\%$$

where A = Total capacity of originally allocated mobile numbers assigned to active customers at the time of application

B = Total capacity of originally allocated mobile numbers reserved for inactive customers for the last 6 months calculated from the date of application

C = Total capacity of ported-out mobile numbers under Mobile Number Portability at the time of application

T = Total capacity of originally allocated mobile numbers

**Codes for Value-added SMS / MMS (para. [2.232.25](#))**

[2.232.25](#) The codes “50(1-9)” are allocated for value-added short message service (SMS) / multimedia messaging service (MMS). Public Mobile Radiotelephone Service Operators, Personal Communications Service Operators and Mobile Carrier Licensees are entrusted by the TA to administer these codes. The TA may appoint other operators (e.g. Fixed Telecommunications Network Services or Fixed Carrier Licensees and Mobile Virtual Network Operators offering SMS / MMS) to administer these codes.

**3. Information to be provided by Applicant**

3.1 In order to facilitate the TA to process an application, the applicant has to supply the following information -

- (a) Name of company and contact person;
- (b) Address of company, facsimile number and telephone number of the contact person;
- (c) Details of the service: whether the applicant intends to launch a new service or to expand/improve an existing service;
- (d) The requirement of the number blocks/codes and indicate any preferences;
- (e) Operational and technical details relating to the requirement of the number block(s)/code(s);
- (f) For the expansion/improvement of the existing fixed network, [IP telephony services](#), mobile or automatic/secretarial paging services, an applicant needs to give the justification for the additional number block(s)/code(s) required. Information

regarding the utilisation of numbers/codes in the existing number block(s)/code(s), the amount of numbers/codes which are recovered and recycled at each month for the past six months from the date of application, type of services, forecast of customer growth and the way to deploy the new number block(s)/code(s) is required for evaluation;

- (g) If an applicant applies for new number block(s) to expand or to improve his existing operator-assisted paging service, then in addition to the requirement in (f) above, he needs to supply the traffic data of the telephone lines that he has currently installed;
- (h) If an applicant applies for number blocks/codes to launch a new service, he needs to explain and give full operational and technical details of the proposed service;
- (h)bis If an applicant applies for any preferred paging number blocks for the existing or new paging services, he needs to follow the procedures given in clause 2.5bis to supply the required supporting justifications in his application and he also needs to donate the committed amount to charity if he is allocated the preferred number blocks; and
- (i) The target service launch date.

3.2 For application for ISPCs and SPCs, the applicant is required to submit the following additional information -

- (a) Schematic of the C7 switch/network set-up showing the types and interconnection with local and overseas carriers;
- (b) Model and type of the C7 signalling equipment;
- (c) Documentary evidence to prove that the C7 signalling equipment are in compliance with the relevant ITU-T standards (e.g. Q.7xx series);
- (d) Physical address of the installation at the Hong Kong end;
- (e) At least one planned C7 signalling interconnection with overseas carriers, with name and address of distant signalling point, location of distant signalling point, and ISPC of distant signalling point, if known; and
- (f) In-service date of the ISPCs and SPCs (month/year).

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**DESCRIPTION OF THE NUMBERING PLAN**

**Leading Digit 0**

<b>Leading Digits 00</b>		access codes for International Direct Dial (IDD) services.
<b>000</b>	-	reserved for future expansion.
<b>001</b>	-	prime access code for IDD calls via the network the customer has chosen as his/her access line provider.
<b>002</b>	-	to be used for the time being as the access code for IDD data/facsimile calls via the network the customer has chosen as his/her access line provider, pending a review on whether it is necessary to separate voice and data calls in future.
<b>003 - 009</b>	-	access codes for IDD voice/data/facsimile of individual fixed telecommunications network to gain access to the international gateways i.e. a customer can make IDD calls via a particular network of his/her own choice even though he/she may originate a call from another network.

**Leading Digits 01-09** reserved for future trunk access to other places in the region.

**Leading Digit 1**

**Leading Digits 10** short codes for various fixed telecommunications networks services.

**Leading Digits 110-111, 113-119** short codes, possibly harmonised in some cases with those in use elsewhere in the region.

**Leading Digits 112** emergency code for all mobile services

**Leading Digits 12** short codes for various fixed telecommunications network services.

<b>Leading Digits 130-132, 134, 136-139</b>	reserved.
<b>Leading Digits 133</b>	code for blocking calling number display on a per call basis
<b>Leading Digits 1357</b>	code for unblocking calling number display transmission for a particular call
<b>Leading Digits 14</b>	network identifiers (NI) used by fixed and mobile networks in number portability.
<b>Leading Digits 15-16</b>	service access codes for external telecommunications services <u>including IP telephony services.</u>
<b>Leading Digits 17</b>	short codes for various mobile services.
<b>Leading Digits 18</b>	special service codes, which involve high volume of traffic, shall be standardised and portable across various fixed telecommunications networks for commonly provided services. Examples are telemarketing and telebetting.
<b>Leading Digits 19</b>	network test codes and routing codes for carriers/operators of external telecommunications services, fixed telecommunications network services and mobile services.
<b><u>Leading Digit 2</u></b>	
<b>Leading Digits 200</b>	calling card services operated by the fixed telecommunications network services operators.
<b>Leading Digits 201-206</b>	numbers for the fixed telecommunications network services <u>and Class 1 IP telephony services (Class 1 services).</u> Numbers shall be portable across <u>and amongst</u> fixed telecommunications networks <u>services and Class 1 services.</u>
<b>Leading Digits 207-209</b>	calling card services operated by the fixed telecommunications network services operators.

## **Leading Digits 210-229**

numbers for fixed telecommunications network services and Class 1 services. Numbers shall be portable across and amongst fixed telecommunications networks services and Class 1 services.

## **Leading Digits 23-29**

numbers for fixed telecommunications network services and Class 1 services. Numbers shall be portable across and amongst fixed telecommunications networks services and Class 1 services.

## **Leading Digit 3**

### **Leading Digits 30**

for public non-exclusive telecommunications services (PNETS). Numbers shall be portable across fixed telecommunications networks.

### **Leading Digits 31**

numbers for fixed telecommunications network services and Class 1 services. Numbers shall be portable across and amongst fixed telecommunications networks services and Class 1 services.

### **Leading Digits 32-33**

reserved for future migration of numbering plan to longer digits.

### **Leading Digits 34-39**

numbers for fixed telecommunications network services and Class 1 services. Numbers shall be portable across and amongst fixed telecommunications networks services and Class 1 services.

## **Leading Digit 4**

network numbers (NN) used by fixed and mobile networks and service-based operator for provision of Class 1 services in number portability.

## **Leading Digit 5**

### **Leading Digits 500**

reserved for special services.

### **Leading Digits 501-509**

codes for value-added SMS / MMS including a service indicator in the third digit.

**Leading Digits 51-596** reserved for future migration of numbering plan to longer digits.

Leading Digits 57-59 for Class 2 IP telephony services

### **Leading Digit 6**

**Leading Digits 600** reserved for special services.

**Leading Digits 601-699,** for mobile services. Numbers shall be portable across mobile networks.

**Leading Digit 7** paging services, except for the '70' range which will be reserved for special services.

### **Leading Digit 8**

**Leading Digits 800** freephone services operated by fixed telecommunications network services operators and numbers shall be portable across fixed telecommunications networks. Depending on the actual service arrangement, this number range may not be accessible to an overseas caller.

**Leading Digits 801-809** reserved for future freephone expansion. Numbers shall be portable across fixed telecommunications networks.

**Leading Digits 81-89** personal numbering services. Numbers shall be portable across fixed telecommunications networks.

### **Leading Digit 9**

**Leading Digits 900** paid-for information services including a service indicator in the fourth digit. Numbers shall be shared by all fixed telecommunications network services operators in a fair and equitable manner.

**Leading Digits 901-989** for mobile services. Numbers shall be portable across mobile networks.

**Leading Digits 99**

for emergency services.

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**Classification of Short Codes**

**Allocation of Short Codes**

Short codes are defined as those telephone numbers which consist of no more than 7 digits in length. They are either used for services with high volume of traffic so that the FTNS networks will not be unduly overloaded or where expeditious access by customers is required. Examples are the enquiry services and hotlines provided by the FTNS operators under the “10X” and “12X” codes, the “188X” telebetting services provided by the Hong Kong Jockey Club, the “180” payment-by-phone services provided by the banking industry and utility companies and the “999” emergency services. Since short codes are valuable scarce resources, any request for allocation of a short code will be scrutinised by the TA closely.

**Categories of Short Codes**

2. The TA classifies the short codes into the following three categories:

- |                   |                                                                                                                                                                                                                                                                                                     |
|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>Category 1</u> | Codes which are universally accessible by customers and universally allocated to all operators e.g. “99X” for emergency services;                                                                                                                                                                   |
| <u>Category 2</u> | Codes which are universally accessible by customers and allocated to a single operator e.g. “10X”, “12X”, “15XX”, “16XX”, “17X” and “20X” codes; and                                                                                                                                                |
| <u>Category 3</u> | Codes which in general will not be passed across networks and are universally allocated to all operators e.g. “108X” for the directory enquiry services, “109” for the fault reporting services and “1850X” for time and temperature services. However, operators are permitted to pass these codes |

across networks under bilateral or multilateral commercial arrangements.

3. All the short codes will be classified into the above three categories in the Numbering Plan for ease of reference by the operators.

### **Short Code Allocation to FTNS and Mobile Network Operators**

4. In order to utilise the short codes more efficiently and effectively, the TA will assign to every FTNS operator a “10”-prefix or “12”-prefix code and every mobile network operator a “17”-prefix code for their various customer enquiry, hotlines requirements and operator-assisted services. Depending on their own operational requirements, the FTNS and mobile network operators can be flexible with the application and the digit length of the allocated short codes provided that they do not exceed 7 digits in length. In addition, the use of these short codes should not duplicate those services which have already been catered for under a separate numbering range in the Numbering Plan. Except for the “18” level, all short codes and their sub-levels should not be assigned to customers under any circumstances. However, subject to compliance with the licence conditions concerning the prohibition of anti-competitive practices and abuse of dominant position, operators which simultaneously own and operate fixed and mobile networks are allowed to implement and use the allocated “10”-prefix or “12”-prefix and “17”-prefix codes in their fixed and mobile operations provided that they remain to comply with the above restrictions and requirements.

### **Short Code Allocation to External Telecommunications Services Operators and Service-based Operators for Provision of IP Telephony Services**

5. To enable customers to have an easy and convenient access to the services offered by external telecommunications services (ETS) operators and Service-based Operators for provision of IP telephony services (SBO), the TA will assign to every ETS operator and SBO a unique 4-digit “15XX” or “16XX” short code as service access code. The ETS operators and SBOs may, at their discretion, extend the digit length of the assigned short codes from 4 digits to a maximum of 5 digits in length.

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**Assignment Principles of Telecommunications Numbers to Public Non-Exclusive Telecommunications Services (PNETS)**

**Classification of PNETS**

In the Hong Kong Numbering Plan, telecommunications numbers with leading digit “30” are reserved for PNETS services. These numbers are assigned by the Fixed Telecommunications Network Services (FTNS) operators to PNETS operators or used by the FTNS operators for the provision of external telecommunications services. Based on the numbering usage and the operational nature, PNETS can be broadly classified into two groups:

**Group 1**

2. Group 1 services are Internet access services, facsimile/data store and forward services, electronic data interchange, database access and retrieval, IDD-type of services including International Simple Resale (ISR) voice, data and fax services, calling card services and etc. These services usually make use of Direct Exchange Lines (DEL) or Direct Dialling In (DDI) lines for connection to the fixed networks. Customers subscribing to these services usually access the services by dialling a prime number with the leading digits “30”.

**Group 2**

3. Group 2 services are public messaging services whereby each customer subscribing to the services is assigned with a unique “30” number as the access number for his personal mailbox. Callers will dial this unique “30” number to deposit messages in the called party’s mailbox and the messages can be voice, fax or electronic mail. The services usually make use of Direct Dialling In (DDI) lines for connection to the fixed network.

**Assignment of “30” Numbers to PNETS Operators by FTNS operators under Normal Applications**

4. For Group 1 PNETS, the maximum circuit-to-number ratios for Direct Exchange Line (DEL) and Direct-Dialling-In (DDI) lines are 1:1 and 1:5 respectively.

5. For Group 2 PNETS, PNETS operators could request for the assignment of up to a maximum of 300 numbers from the FTNS operator for every installed or additional T1 circuit or 24 DDI circuits. The maximum ratio of circuit-to-number for DDI service is 1:12.5.

**Assignment of “30” Numbers to PNETS Operators under Special Circumstances**

6. If PNETS operators have an operational need to use more numbers than that available from the normal assignment, they can submit an application together with their reasons and justifications to the TA stating their required circuit-to-number requirement. The TA will study the operators’ request based on the operational requirements, service nature, traffic demand and the existing utilisation of “30” numbers already assigned to the operators. If the applications are successful, the TA will issue an approval letter to the PNETS operators to facilitate them to apply for the required numbers from the FTNS operators.

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Assignment Principles of Fixed Network Numbers to  
Direct-Dialling-In (DDI) Services

Assignment of DDI Numbers to Customers of PABX Systems by  
FTNS operators and Service-based Operators for Provision of IP  
Telephony Services (SBOs)

Direct-Dialling-In (DDI) numbers are assigned to corporate customers for the provision of telephone extensions in private automatic branch exchange (PABX) systems.

2. To cater for DDI numbers requirement of a customer installed with a PABX system, the fixed telecommunications network services (FTNS) operators or SBOs could assign a basic quantum of 100 DDI numbers to it.

For FTNS Operators

3. However, if customers have actual requirements of using more than 100 DDI numbers, the FTNS operators could assign in multiple of 100 DDI numbers to the customers according to the ratio of circuit-to-number of 1:12.5.

4. For exceptional cases where customers (such as hotels) with relatively low traffic volume per PABX extension compared with the ordinary office operation, the FTNS operators could assign DDI numbers (in multiple of 100) to cater for the user's requirement according to the actual number of installed extensions.

For SBOs

5. To cater for the operational needs of customers using the IP telephony services, the SBOs could assign DDI numbers (in multiple of 100) according to the actual number of installed extensions.

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**Allocation of subscriber numbers and mobile network code (MNC) to  
Mobile Virtual Network Operator (MVNO)**

Subscriber numbers and MNC may be assigned to licensed MVNO if they meet the following requirements:

- (a) Provide, or intend to provide, mobile services to a customer base, including the general public;
- (b) Provide its own mobile switching and gateway infrastructure, for circuit and/or packet switched traffic;
- (c) Enter into its own interconnection and roaming agreements;
- (d) Provide its own business support systems, such as billing and customer care;
- (e) Maintain its own Home Location Register of subscribers (or equivalent functionality);
- (f) Satisfy requirements for call control, as required by the TA and normally associated with an operator (such as emergency calls, number portability etc.); and
- (g) Issue its own SIM cards.

2. A MVNO should submit sufficient justifications and information, to the TA in supporting its application of MNC and subscriber numbers. Upon the completion of the equipment installation or service launch of the MVNO concerned, the TA may, if necessary, conduct a physical audit of the MVNO's installed equipment or ask the MVNO to supply additional information in order to verify whether the MVNO has already fulfilled the requirement given in para. (1) above.

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Allocation of Subscriber Numbers to Service-Based Operators for  
Provision of IP Telephony Services

Subscriber numbers may be allocated to licensed service-based operators for provision of IP telephony services (SBOs) if they meet the following requirements :

- (a) Provide, or intend to provide, IP telephony services to the general public and any local customer.
- (b) Provide their own service platforms, including the IP infrastructure and media gateway for interfacing with the hosting fixed telecommunications network service / fixed carrier licensees.
- (c) Provide their own business support system, including the billing and customer care systems.

2. The TA may inspect the applicant's installed equipment or ask the applicant to furnish the relevant information in order that he may verify that the applicant fulfils the requirement given in (a) – (c) at all time.

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