

TELECOMMUNICATIONS NUMBERING ADVISORY COMMITTEE

Number Supply for Telecommunications Services

Purpose

With the continued growth of demand for various telecommunications services, particularly mobile and innovative telecommunications services, it is necessary to ensure that sufficient telecommunications numbers will be made available to meet both the immediate and long term need. This paper reviews the numbering resource currently available for telecommunications services, identifies the migration options for increasing the number supply and makes recommendations to cope with the immediate and long term demand of numbers.

Introduction

2. In February 2007, the Chairman of the Telecommunications Numbering Advisory Committee (NAC) formed an NAC Working Group (NAC WG) to address various short and long term numbering issues. The terms of reference of the NAC WG are as follows:

- To study and evaluate the long term need and the various possible options for future migration to 9 or 10 digits;
- To estimate and/or project the time frame of number exhaustion of various number categories/levels, including demands for new services if any, using existing and new numbering arrangements;

- To explore the practical number levels/blocks that could be allocated for mobile services after exhaustion of “9” and “6” numbers based on the result of the study of future migration options;
- To explore other options to improve number utilization efficiency, e.g. thresholds for new number block application; and
- To discuss any other related issues as identified by the NAC WG.

3. The NAC WG held a total of seven meetings from February to September 2007 to address various issues relating to numbering with thirty-seven (37) members participating in various working group deliberations. This paper is developed based on the discussions and recommendations of the WG.

The Hong Kong Telecommunications Numbering Plan

4. Hong Kong has well recognized that numbering of telecommunications services is central to the continuing development of effective telecommunications infrastructure in Hong Kong. In November 1992, the Telecommunications Authority (TA) commissioned a consultant to conduct a detailed study on the numbering requirements of Hong Kong and to make recommendations on the future numbering plan. Having considered the consultant’s recommendations and the comments from the industry, the TA issued a report entitled “A New Numbering Plan for Telecommunications Services in Hong Kong”¹ in January 1994. With the support of the industry, Hong Kong’s numbering plan was changed from a mixture of 7 to 9 digits to a new unified 8-digit plan in 1995. Since then, the telephone numbers allocated to fixed, mobile and paging services are 8-digit numbers. In finalising the new numbering plan, the TA would expect that it should be able to meet the future growth and requirements in telecommunications for at least the next 15 years (i.e. up

¹ The report can be downloaded from OFTA’s website at “http://www.ofa.gov.hk/en/numbering/final_report.pdf”.

to 2010).

5. With the liberalization of the local fixed telecommunications services, more and more local fixed operators have implemented their networks in Hong Kong. Currently, there are ten wireline based and one wireless based local fixed operators offering different types of fixed services to the public. Starting from 2006, the TA has also issued licences for Services-Based Operators (SBOs) to provide local fixed telecommunications services. For mobile services, the subscriber growth rate maintains at a high level. It is noted that the number of mobile users has increased from 2.1 millions in December 1997 to 9.7 millions in July 2007, i.e. an increase of more than 7 millions in ten years. Since there is a continued growth of telecommunications services, it is anticipated that the demand of numbers in Hong Kong will continue in the short and medium term. The long term growth in telecommunications numbers, however, is difficult to confirm at this stage. The growth may slow down due to market saturation or introduction of new numbering scheme, for example, ENUM. OFTA will keep monitoring and adjust demand forecast where necessary.

6. Under the current numbering plan, numbers with leading digits of “2 and 3”, “6 and 9”, “7” and “8” are allocated to fixed, mobile, paging and personal numbering services respectively. Details of allocation of numbers to different services/applications can be found in the document entitled “The Numbering Plan for Telecommunications Services in Hong Kong”² (“Numbering Plan”) which is posted on OFTA’s website and updated from time to time. Because of continued relatively high growth of demand for mobile services in the past years, it was foreseen in early 2007 that un-allocated number blocks in “6X/9X” would soon be exhausted. Based on the current mobile number consumption of 12 number blocks per annum, all “6X/9X” un-allocated number blocks, other than those reserved as “Special Numbers”, have already been allocated. It is therefore necessary for the TA to take a decision as soon

² The Numbering Plan for Telecommunications Services in Hong Kong can be downloaded from OFTA’s website at “http://www.ofta.gov.hk/en/numbering/no_plan.html”.

as practicable on which number blocks that should be allocated to mobile services after the number blocks in “6X/9X” are exhausted.

Allocation of New Number Blocks to Mobile Services

7. Before a decision on which number blocks are to be allocated to mobile services is to be taken, the TA has to think through various related issues including impacts on (a) end users and service providers; (b) the arrangements for future longer digit number migration; (c) the “available” number blocks (or usable capacity); and (d) the life time of the current numbering plan. This is due to the fact that for different longer digit migration plan, OFTA will have to reserve different number blocks for providing “dual-access” arrangement³ during the migration or changeover period and this will in turn result in different number of vacant number blocks that can be allocated (i.e. different usable number capacity for different longer digit migration arrangements). These issues are complex and intertwined, and need intensive discussions and resolutions among various stakeholders. As such, an NAC WG was formed in February 2007 to identify various possible options and make recommendations for further deliberation at the NAC. The major issues discussed and/or resolved are given in paragraphs 9 to 35 below.

8. In fact, the NAC, which is an advisory committee responsible for advising the TA on the development, implementation and administration of Hong Kong's telecommunications numbering plan and issues related to it, has been keeping close monitoring of the use of telecommunications numbers and discussed the issues for a number of occasions in past years. In late 1990s, the NAC put in place a provisional plan for the future migration of fixed and mobile numbers from 8-digit to 9-digit by reserving some of the numbering blocks. During Year 2003 and 2004, the NAC also reviewed some numbering options to expand the number

³ “Dual-access” arrangement is an arrangement during the changeover period for longer digit migration whereby calls will be put through if the old numbers are still being dialed.

supply for fixed and mobile services in order to cater for the rapid growth of the telecommunications services. Those discussion details can be found in NAC Papers No. 4/1999, No. 8/1999, No. 4/2003, No. 1/2004 and No. 3/2004⁴.

9. It is obvious that any major change to the numbering plan will have significant social and cost impact on the general public, including both the residential and business users. The NAC WG, therefore, recommends that the following guiding principles shall be adopted so as to minimise the social and cost impact, in devising and selection of any plan for the future numbering migration to longer digit as well as allocating vacant number blocks to different services.

- maintain differentiation for different types of services using different number prefixes where practicable;
- implement subscriber number migrations to longer digit for different types of services in the same period of time where practicable so as to create as little confusion to the public as practically feasible; and
- provide dual-access arrangement for a reasonable period of time, say 3 to 6 months, in future migrations to longer digit.

Estimation of Number Demand

10. The average demand of numbers for fixed and mobile services in the past three years was 4 and 12 number blocks (each number block contains 100,000 numbers) per year respectively. In assessing the future demand of numbers, the NAC WG members shared the views that it is by no means easy to make accurate forecast of future number demand of different types of services as service demand may change due to a

⁴ The NAC Papers No. 4/1999, No. 8/1999, No. 4/2003, No. 1/2004 and No. 3/2004 can be downloaded from OFTA's website at "<http://www.ofa.gov.hk/en/ad-comm/nac/nacpaper.html>".

number of factors, for example, introduction of new features or services, new marketing strategy etc. With the potential growth of new services, e.g. one SIM card with two/multiple numbers, VOIP services etc., it is important to ensure that sufficient numbers will be made available to cater for the future demand. The numbering plan should be reviewed from time to time to ensure that sufficient supply of numbers will be made available on time.

11. There is a general consensus that the current 8-digit numbers should continue to be used as long as possible so as to minimize the possible adverse impact due to migration to longer digit numbering plan. Therefore, some of the existing vacant number blocks in the numbering plan should be made available for allocation to mobile services in order to meet the continued high demand of mobile numbers. The NAC WG has explored a number of options to increase the number supply or usable number capacity in the future and to use the currently available number resource more efficiently. While it is agreed that future demand of numbers is uncertain and accurate forecast is almost impossible, for planning purpose, it is agreed to adopt the recent number consumption rate as a planning guide, i.e. a total of 16 blocks per annum. We will rely on these figures to estimate the life span of each options described in this paper.

Future Longer Digit Number Migration Options

12. In the existing 8-digit numbering plan, vacant number blocks available for allocation are mainly number blocks with the leading digits of “5X” and “8X”. Though “5X” and “8X” can be allocated to meet the imminent demand of mobile numbers and some future new services, it is estimated that these number blocks will also be exhausted after some years, the length of which will depend on the migration option to be adopted. Based on the current number consumption rate, it is estimated that migration to longer digit will need to take place in the coming 10 to 20 years. In this connection, the NAC WG has reviewed the current

usage of numbers, identified and explored a number of feasible 9-digit and 10-digit migration options, including the paging number migration. A table highlighting these migration options is given in Annex 1 and more details are described below. In devising longer digit migration plans, the NAC WG has recommended that sufficient advance notice, say, around 3 years should be given to affected operators so that they could have sufficient time to do the preparation work and advise their customers.

Option 1 - 9-Digit with “3&8” as the leading digit for fixed and mobile services respectively

13. Under this proposal (the “3&8” Option), fixed and mobile numbers will be added with a leading digit of “3” and “8” respectively to form a 9-digit number. Following this proposal, 8-digit “2X/3X” fixed numbers will be migrated to “32X/33X”, “6X/9X” mobile numbers will be migrated to “86X/89X” whereas “8X” personal numbers will be migrated to “38X”. Under this option, many of the current “8X” levels need to be reserved for the dual-access arrangement during changeover but un-allocated “5X” numbers can then be released for allocation as mobile numbers.

14. It is estimated that by adopting the “3&8” Option, the un-allocated “5X” numbers can meet the demand up to 2015. With the need of a 3-year advance notice for migrating to longer digit, the TA will need to decide by around Year 2012 whether the “3&8” Option is to be retained and implemented. Although this option has a relatively shorter life time as compared with the other 9-digit migration options, majority of the NAC WG members have indicated their preference of retaining this option for selection at a later time because of the popularity of the leading digits of “3” and “8” in Hong Kong.

15. There is a possible alternative to first migrate paging number to 9-digit (for example, insert a “0” as a second digit in all the existing paging numbers) so as to provide an additional spare number capacity of 9 millions. This will help extend the life time of the existing 8-digit

numbering plan for fixed and mobile services for about 5 to 6 years and hence defer the time for longer digit migration until Year 2020.

Option 2 - 9-Digit Plan with “3&7” as the leading digit for fixed and mobile services respectively

16. Under this Option (the “3&7” Option), a “3” and “7” will be added to fixed and mobile numbers respectively. Existing “2X/3X” fixed numbers and “6X/9X” mobile numbers will be migrated to “32X/33X” and “76X/79X” respectively whereas “8X” personal numbers will be migrated to “38X”.

17. Under the “3&7” Option, the vacant number blocks in “5X” as well as “8X” can be released for allocation to telecommunications services. With the use of these ‘additional’ “8X” numbers, the life time of the current 8-digit numbering plan can be extended to 2018. The decision to take up this option will have to be made in 2015 if a 3-year advance notice is given for the preparation of the migration.

18. As there will be a need to reserve many “7X” levels for dual-access purpose, it will help extend the life time of the 8-digit plan for about two year only if the paging numbers are migrated to 9-digit first.

Option 3 - 9-Digit Plan with “7” as the leading digit for fixed and mobile services

19. Under this proposal (the “7” Option), a “7” digit is added to all the existing fixed and mobile numbers. Other than the “5X” numbers, vacant number blocks of “8X” and “3X” (i.e. those “8X” and “3X” blocks reserved for the “3&8” and “3&7” Options) can also be used for allocation to meet the demand. With the use of the vacant blocks in “5X, “8X” and “3X”, the life time of the current 8-digit numbering plan can be extended to 2020. In order to provide a 3-year advance notice for changeover, the decision to take up this option will have to be made in

2017.

20. Similar to the “3&7” Option, as there will be a need to reserve many “7X” levels for dual-access purpose, it will only help extend the life time of the 8-digit plan for about two year if the paging number is migrated to 9-digit first.

Option 4 -10-Digit Plan with “33&88” as leading digits for fixed and mobile services respectively

21. Under this Option (the “33&88” Option), “33” and “88” will be added to fixed and mobile numbers respectively to form a 10-digit number. Majority of the NAC WG members are in favour of this 10-digit migration option as it can extend the life time of the current 8-digit numbering plan to a longer period of time than the 9-digit options and at the same time, increase the number supply by nearly 100-fold to meet the long term demand for telecommunications numbers. While the public has to memorise longer 10-digit numbers (versus 9-digit numbers under the 9-digit migration options), it is considered by many WG members that “33” and “88” are easy to remember and would be welcomed by majority of the public.

22. Under the “33&88” Option, since only “33” and “88” are to be reserved for future migration of the fixed and mobile numbers, almost all vacant number blocks with prefixes “5X”, “8X” and “3X”, including all those number blocks that will need to be reserved for the 9-digit migration options, can be released for number allocation. As the number blocks to be reserved for fixed and mobile number migration will be relatively small, (i.e. “33” and “88” only), a higher usable capacity and more efficient use of 8-digit numbers can then be achieved. If this option is adopted, the life time of the current 8-digit numbering plan can be extended to 2020 (i.e. same as the “7” Option).

23. In case the TA decides that paging migration to 10-digit numbers should be implemented first, e.g. in Year 2019, to vacate 8-digit “7X”

numbers for other services, then the life time of the existing 8-digit numbering plan will be extended for a further 6 to 7 years such that the 10-digit migration for fixed and mobile numbers can be implemented in 2026. The decision to migrate paging numbers first might be easily justified in 2017 as the paging service might have already been substituted by other services and/or the number of subscribers could be very small.

Paging Number Migration

24. Currently, paging numbers start with prefix “7” and are 8-digit in length (i.e. “71-79” with 9 million numbers, “70” is now reserved). The number of paging subscribers are now below 140,000 rendering the utilization rate of “7X” numbers less than 1.6%. Since most of the number blocks were allocated to the paging operators many year ago during which the number of paging subscribers had reached a maximum of about 1.5 million, the allocated paging numbers as well as the remaining vacant number blocks currently available in “7X” are scattered in all “71X” to “79X” levels . If these patchy vacant number blocks are allocated to mobile or other telecommunications services, the public may have difficulties to identify the type of services with the first or first two digits of numbers and it may create confusion to the public.

25. Some NAC WG members propose that the existing paging numbers should first be migrated to longer digit (e.g. 9-digit) so as to vacate “7X” numbers (in 8-digit format) for mobile and other types of services. If this proposal is accepted, the life time of the existing 8-digit numbering plan for fixed and mobile services can be further extended. Under such an arrangement, paging numbers would have to be migrated to 9-digit numbers a few years ahead of other services and a dedicated publicity program for paging migration needs to be arranged.

26. The Radio Paging Association considers that a single migration together with all other services, whether to 9 or 10 digit numbers, is preferable as this will maintain unified digit length of subscriber numbers

for all types of telecommunications services in Hong Kong. However in case either the “3&7” or the “7” migration option is selected for implementation, “7X” paging numbers will have to be migrated first so that the “7X” levels can be set free for migration of 8-digit fixed and mobile numbers to 9-digit numbers. Under such a transitional arrangement, the Radio Paging Association does not object to the arrangement that the paging number migration be held about one year ahead of the number migration of the other services, but it would expect that the publicity programme would be released as one single plan/schedule to cover all services to be migrated in a defined period of time.

27. A number of paging migration options, including both 9-digit and 10-digit migration were studied by the NAC WG. To allow for more flexibility, it is proposed that number blocks with prefixes “70” and “87” be reserved for paging number migration. Between the two main groups of migration options, the Radio Paging Association prefers the 10-digit Option to the 9-digit Options.

28. As there is no imminent need to decide on the exact time frame and migration option for paging service now, it is proposed that the identified options can be kept open for further review together with the migration options for fixed and mobile services.

Selection of the Migration Options

29. For easy reference, a summary and comparison of the four options with explanation notes are given in Annex 2. On the assumption that the number consumption will maintain at a rate of 16 number blocks per year, it is estimated that the existing 8-digit numbering plan will need to be migrated to 9-digit or 10-digit numbering plan in 10 to 20 years’ time. During the study of the possible migration options, it was identified that each of these options (i.e. “3&8”, “3&7”, “7” and “33&88”) has its own merits. If the available vacant “5X” number blocks are to be

allocated first to mobile services or some new services in the coming few years, all these four migration options can co-exist and remain valid for some time. In any case, the earliest date that a decision has to be made on option selection is 2012 and no real change or migration of numbers will start earlier than 2014. As such, it is proposed that, instead of selecting a particular option and dropping others now, maximum flexibility can be achieved if all these four migration options are kept open now for selection in the future opportune time.

Number Blocks to be reserved for the Migration Options

30. As shown above, in order to provide dual-access arrangement during the changeover period, vacant number blocks with prefixes same as the future migrated prefixes should be reserved in the prevalent numbering plan. A table showing the number blocks to be reserved for dual-access is shown at Annex 3.

Number Allocation for Personal Numbering Services

31. Under the existing Numbering Plan, “8(1-9)” is planned for allocation to fixed operators for personal numbering services. Up to now, number blocks of “8(1-3)X” have been allocated to fixed operators. In the past years, the demand for personal numbers is relatively low when compared with that for mobile and fixed numbers. As of September 2007, there are eight un-allocated number blocks in the “8(1-3)” number range.

32. As described above, the “3&8” and “33&88” Options are two of the four preferred options to be kept open for future selection. Considering the need to reserve relevant number levels under these two options and taking into account that the vacant “5X” blocks will soon be allocated to mobile services, the number levels of “8(5-9)” will have to be reserved for dual-access arrangement. As a result, it is proposed that the

allocation of number blocks for personal numbering services will be confined to “8(1-3)X” only while “8(4-9)X” blocks will be reserved.

33. Regarding the provision of personal numbering services with single or multiple call-forwarding as the main feature, fixed operators can use the existing fixed numbers with prefix “2” and “3” to provide the same or similar features in lieu of using “8X” numbers.

Threshold Utilization Rate for New Number Block Application

34. According to the current Code of Practice relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan⁵ (“Numbering CoP”), a fixed or mobile operator/licensee may apply to the TA for a new fixed or mobile number block when it has achieved a threshold number utilization rate of 50% and 60% respectively. The NAC WG has considered this disparity. Majority of the members agree that a uniform threshold utilization rate of 60% for both fixed and mobile network operators should be adopted when applications for new number blocks are received from operators.

Annual Charge for Numbers Allocated

35. Under the current Services-Based Operator (SBO) Licence and the proposed Unified Carrier Licence, one of the licence fee components is “number fee”, i.e. there will be a fee per telecommunications number allocated. As a matter of “equality” principle, the same arrangement should be applied to all telecommunications services using telecommunications numbers. In that case, operators may wish to return as many unused numbers to OFTA as possible after the new number fee is introduced. The NAC will be tasked to look into the issue and develop a set of procedures/guidelines to meet the new demand/requirement.

⁵ The Code of Practice relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan can be downloaded from OFTA’s website at “<http://www.ofta.gov.hk/en/numbering/main.html>”.

Recommendations

36. The following recommendations are proposed:

- The four migration options i.e. “3&8”, “3&7”, “7” and “33&88” Options described in this paper are to be retained;
- the NAC should review the numbering plan on an annual basis and to make recommendation on the selection and implementation of any of the four options as described in this paper;
- the number blocks in “5X” (i.e. “51/53/54/56/59”) are to be allocated for mobile services as well as any other new services to be introduced in the near future;
- “8(1-3)X” number blocks rather than the whole range in “8(1-9)” are to be allocated to personal numbering services; and
- a uniform threshold utilization rate of 60% for both fixed and mobile network operators should be adopted when applications for new number blocks are received from operators.

Way Forward

37. After further deliberations in the NAC and if the above recommendations are generally supported by the NAC members, the recommendations will be put forth to the TA for consideration.

38. Subject to the consent of the TA, the recommendations will be implemented and/or effected. Subsequently, the following actions will be taken by OFTA:

- To amend the Numbering CoP/Numbering Plan so as to incorporate the necessary changes, including the reservation of number levels for future migration plans, a uniform threshold utilization rate to 60% for both fixed and mobile operators, etc.
- To allocate number blocks in “5X” (i.e. “51/53/54/56/59”) for mobile services and other new services.
- To monitor the number demand trends for various services and to arrange NAC Working Group meetings to discuss related number issues.

Advice Sought

39. Members are invited to give views and comments on this paper and endorse the recommendations given in paragraph 36.

Office of the Telecommunications Authority
October 2007

Different 9-Digit and 10-Digit Migration Options

Existing Number \ Migrated Number	<u>“3&8” Option</u>	<u>“3&7” Option</u>	<u>“7” Option</u>	<u>“33&88” Option</u>
	3 for fixed & 8 for mobile	3 for fixed & 7 for mobile	7 for fixed & mobile	33 for fixed & 88 for mobile
2X/3X	32X/33X	32X/33X	72X/73X	332X/333X
6X/9X/5X*	86X/89X/85X	76X/79X/75X	76X/79X/75X	886X/889X/885X
8(1-3)	38(1-3)	38(1-3)	78(1-3)	338(1-3)

* Assuming that “5X” would be allocated to mobile services.

Summary of the Migration Options

	<u>“3&8” Option</u> 3 for fixed & 8 for mobile	<u>“3&7” Option</u> 3 for fixed & 7 for mobile	<u>“7” Option</u> 7 for fixed & mobile	<u>“33&88 Option”</u> 33 for fixed & 88 for mobile
a) Sequence of number allocation	5X	5X, 8X	5X, 8X, 3X	5X, 8X, 3X
b) Time (Year) to decide whether to implement the migration option and/or paging vacation	2012	2015	2017	2017
c) Time to implement paging vacation for other services (if decided in b)	2014	2017*	2019*	2019
d) Time to implement the migration option <u>without</u> paging vacation first for other service	2015	2018	2020	2020
e) Time to implement the migration option <u>after</u> paging vacation first for other services	2020	2020	2022	2026

* Not worthwhile to implement paging number vacation as the vacated “7X” would only extend the life time of the 8-digit numbering plan for around 2 years.

Remarks:

1. If available vacant “5X” levels are allocated to mobile services (and if necessary, to some other new services), based on the current number consumption rate, the TA will have to decide by around Year 2012 whether or not the “3&8” Option be implemented in Year 2015. If the “3&8” Option is not chosen (i.e. the option is dropped), then the vacant blocks in “8X”, including those “8X” blocks reserved under the “3&8” Option, can be released for allocation. At this juncture, the three remaining options (i.e. “3&7”, “7” and “33&88”) will still be valid for further selection. Then, around Year 2015 (3 years before the exhaustion of “8X” number blocks), the TA will need to decide whether or not the “3&7” Option be implemented in Year 2018. If this

“3&7” Option is dropped then vacant number blocks in “3X” can be allocated to meet the prevailing number demand. By then the “7” and “33&88” Options are still valid. Further the TA will need to decide in around Year 2017 whether to implement the “7” Option or the “33&88” Option so as to expand the numbering capacity in around Year 2020. The above decision and implementation time (i.e. year) are estimated based on the assumed demand of 16 number blocks per year and that “7X” paging numbers are not vacated first for allocation to other services.

2. If it is decided in Year 2012 that paging number migration to vacate “7X” numbers for other services be carried out, say, in Year 2014, then the TA will have to decide by Year 2017 whether to implement the 9-digit “3&8” migration option by Year 2020.






3. In case vacated “7X” paging number blocks are allocated for other services, effectively “3&7” and “7” Options are dropped thus leaving the “3&8” and “33&88” Options valid for further selection. If the “3&7” and “7” Options are not dropped, many of the vacated “7X” number blocks will need to be reserved for dual-access arrangement. In turn, most of the vacated “7X” number blocks cannot be used for extending the life time of the current 8-digit numbering plan. Therefore, under either the “3&7” or “7” Option, it is considered not worthwhile to implement paging number vacation first as the vacated “7X” would only extend the life time of the 8-digit numbering plan for around 2 years.

4. Under the 10-digit “33&88” Option, the TA will also need to decide by around Year 2017 whether or not paging number migration be implemented in Year 2019 to vacate “7X” numbers for other services. If the paging number migration is held first, the 8-digit numbering plan may then last until Year 2026.

Number Blocks that need to be reserved for Different Migration Options

	3&8 Option	3&7 Option	7 Option	33&88 Option
32	Reserved for 9-digit expansion.	Reserved for 9-digit expansion.		
33	Reserved for 9-digit expansion.	Reserved for 9-digit expansion.		Reserved for 10-digit expansion.
38	'38' is reserved since '8(1-3)' had been allocated for Personal Numbering Services.	'38' is reserved since '8(1-3)' had been allocated for Personal Numbering Services.		
373	'373' need to be reserved if '73' will be allocated for Fixed Services after paging migration.	'373' need to be reserved if '73' will be allocated for Fixed Services after paging migration.		
377	'377' need to be reserved if '77' will be allocated for Fixed Services after paging migration.	'377' need to be reserved if '77' will be allocated for Fixed Services after paging migration.		
378	'378' need to be reserved if '78' will be allocated for Fixed Services after paging migration.	'378' need to be reserved if '78' will be allocated for Fixed Services after paging migration.		
52	If '5X' is allocated for Mobile Services, '52' should be reserved to avoid conflict with '852' (i.e. country code of HKSAR).			
55	'55' may be reserved for '57/58' migration to '557/558' (subject to further review)	'55' may be reserved for '57/58' migration to '557/558' (subject to further review)	'55' may be reserved for '57/58' migration to '557/558' (subject to further review)	'55' may be reserved for '57/58' migration to '5557/5558' (subject to further review)
70	Reserved for '70' paging migration option.	Reserved for '70' paging migration option.	Reserved for '70' paging migration option.	Reserved for '70' paging migration option.
72			Reserved for 9-digit expansion	
73			Reserved for 9-digit expansion	

	3&8 Option	3&7 Option	7 Option	33&88 Option
75		'75' is reserved since '5X' will be allocated for Mobile Services.	'75' is reserved since '5X' will be allocated for Mobile Services.	
76		Reserved for 9-digit expansion.	Reserved for 9-digit expansion	
77		'77' will need to be reserved if '7X' will be allocated for Mobile Services after paging migration.	'77' will need to be reserved if '7X' will be allocated for Mobile Services after paging migration.	
78		'78' will be reserved since '8X' will be allocated for Mobile Services.	'78' will be reserved since '8X' will be allocated for Mobile Services.	
79		Reserved for 9-digit expansion.	Reserved for 9-digit expansion	
85	'85' is reserved since '5X' will be allocated for Mobile Services.			
86	Reserved for 9-digit expansion.			
87	Reserved for 9-digit expansion and '87' paging migration option.	Reserved for '87' paging migration option.	Reserved for '87' paging migration option.	Reserved for '87' paging migration option.
88				Reserved for 10-digit expansion.
89	Reserved for 9-digit expansion.			

-  Number blocks reserved for 3&8 Migration Option
-  Number blocks reserved for 3&7 Migration Option
-  Number blocks reserved for 7 Migration Option
-  Number blocks reserved for 33&88 Migration Option
-  Number blocks reserved for Paging Migration Options