

TELECOMMUNICATIONS NUMBERING ADVISORY COMMITTEE

Assignment of Codes and Numbers for External Service-based Operators

Purpose

To seek the views and comments of Members of Telecommunications Numbering Advisory Committee (TNAC) on the proposed assignment of codes and numbers to external service-based operators.

Introduction

2. In the TNAC meeting held on 25 June 1998, Members had discussed NAC Paper No. 9/1998 about the proposed assignment principles of International Signalling Point Codes (ISPC), Signalling Point Codes (SPC) and testing and routing codes ("19" range) for external facilities-based operators. With the support of Members, the TA had subsequently adopted the assignment principles of ISPC and SPC and incorporated them into the Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan (Cap. 269). The Office of the Telecommunications Authority (OFTA) would also study and explore whether it would be justified and feasible to allocate an additional numbering range, in addition to "19" range, in order to expand the numbering capacity for the purpose of network testing and routing by network operators with overseas and local counterparts and within their networks.

Requirements of Codes and Numbers for External Service-based Operation

3. Recently, OFTA received applications from potential external service-based operators that after the grant of external service-based licences to them, they would require ISPCs, SPCs and short codes for the operation of external services starting from 1 January 1999. Although the future external service-based operators would have to lease the international circuits from external facilities-based operators for the provision of the external services, their operation would be similar to that of the external facilities-based operators. They would use C7 switches as service platforms and signalling nodes for direct interconnection with their overseas and local carriers such that data and signalling messages could be exchanged and conveyed through the C7 signalling links.

4. To implement and operate the C7 signalling switches/networks, there is a requirement for external service-based operators to use ISPCs and SPCs. In addition to the ISPCs and SPCs, these operators would also need to use short codes as service access codes such that their customers would be able to select and access their services through the local fixed networks efficiently and effectively. Similarly, they also have the

requirement to use the “19” range for network testing and routing purpose with their local and overseas carriers and within their networks.

5. By using C7 signalling network, external service-based operators would be able to establish direct connections with the overseas and local networks such that the following advantages could be realised:

- call set-up would be faster and more reliable;
- it will enhance network management functions of their switches/networks;
- use of Calling Line Identification function will facilitate call identification and billing purpose; and
- it will support use of short code in accessing the service.

6. However, there is a concern that if there are faults appearing at the C7 signalling links at the switches/networks of the external service-based operators, the other interconnecting networks might be affected. The TA will have to develop some network reliability safeguards in order to govern the operation and use of C7 signalling networks by all local network operators including external service-based operators and incorporate such safeguards into code of practice which the operators involved will be obliged to follow.

International Context

7. In Australia, the United Kingdom and the USA, ISPCs are assigned to facilities-based operators as well as ISR operators. Our recent research in ISPC utilisation at these countries indicates that the number of ISPCs assigned by them are 40 in Australia, 127 in the UK and 232 in the USA. It is obvious that these countries adopt an open policy in assigning ISPCs. In order to strengthen Hong Kong’s position as the regional hub of telecommunications, the TA considers that Hong Kong should follow the international trend in assigning ISPCs to both facilities-based and service-based operators.

Resource Considerations

ISPC

8. At present, Hong Kong is assigned with 5 International Signalling Area/Network Codes (SANC) by the International Telecommunication Union (ITU), namely 4-105, 4-106, 4-107, 4-108 and 4-109. From these SANCs, there are in total 40 ISPCs available which are 4-105(0-7), 4-1016(0-7), 4-107(0-7), 4-108(0-7) and 4-109(0-7). Eight ISPCs under 4-108(0-7) have been assigned to HKTI. As of today, there are 32 vacant ISPCs available for future assignment. OFTA has already made an application to the ITU for assigning additional SANCs to Hong Kong in order to meet the demand of ISPC from the external service-based and facilities-based operators. The existing assignments of ISPCs are given in Annex 1.

SPC

9. Basically, one SPC is needed for establishing interconnection between two C7 switches. The TA, however, is aware that in designing telecommunications networks, it is a common practice to have multiple switches employing site diversity for the purpose of load sharing, backup and improving system reliability. In addition, additional SPCs could be used for network testing and service development without affecting existing traffic. The TA proposes to assign 8 SPCs to each external service-based operator initially for their start of the operation. At present, there are 12,544 SPCs available in the numbering plan which are well sufficient to cater for the future demand from the industry. For fixed and mobile network operators, the TA has been assigning them 64 SPCs initially for their network operation. The existing assignments of SPCs are given in Annex 2.

Short Code

10. For the short code requirement, the TA considers that “15” and “16” ranges, which have been reserved in the Hong Kong Numbering Plan as carrier selection codes, are feasible and applicable for use as service access codes by external service-based operators. Therefore, the TA proposes to assign a unique 4-digit short code under “15XX” and “16XX” to each external service-based operator. For example, a subscriber of an external service-based operator with service access code “1555” would have to dial “1555 1 405 7888887” from the local fixed network in order that his/her call would be carried by his/her subscribed external service-based operator to a destination number “405 7888887” in the United States with the country code “1”.

Network Testing and Routing Code

11. For network testing and routing purpose, the TA considers that external service-based operators would use the “19” range which has been stipulated in the numbering plan for such purposes.

Application of Codes and Numbers

12. In applying for the above codes and numbers, the TA considers that the external service-based operators would need to submit their applications together with the details of the implementation plan, configuration and operation of their C7 switches and networks to the TA for evaluation and consideration.

Proposed Assignment Principles

13. For the introduction of external service-based competition, the TA considers that the external service-based operators would have the genuine requirements to use ISPCs

and SPCs for the operation of the C7 signalling switches/networks and to use short codes and “19” range for service access and network testing purpose respectively.

14. To facilitate the assignment of codes and numbers to external service-based operators, the TA proposes to amend the following clauses in the Code of Practice Relating to the Use of Numbers and Codes in the Hong Kong Numbering Plan (Cap. 269):

"International Signalling Point Codes (ISPC) (para. 2.15-2.16)

2.15 *External facilities-based and service-based operators who establish direct C7 signalling links and interconnections with overseas carriers are entitled to apply for and use ISPCs.*

2.16 *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. 2.17-2.20)

2.17 *Network operators (mobile network operators and fixed network operators which include external facilities-based operators) and external service-based operators 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.*

2.18 *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.*

2.19 *The TA will assign initially 8 SPCs to a newly licensed external service-based operator who has a need to operate a C7 signalling switch/network with local carriers.*

2.20 *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 respectively."*

Advice Sought

15. The TA would like to invite views and comments from members of the NAC on the above proposed assignment of codes and numbers for external services based operators.

Office of the Telecommunications Authority
23 October 1998

International Signalling Point Code (ISPC) Assignments

ISPC Assignment	Node/Exchange	Status
4-105-(0-7)	-	Unallocated
4-106-(0-7)	-	Unallocated
4-107-(0-7)	-	Unallocated
4-108-0	Electra	HKTI
4-108-1	Hermes	HKTI
4-108-2	Zodiac	HKTI
4-108-3	Reserved	HKTI
4-108-4	Fo Tang	HKTI
4-108-5	East Tower	HKTI
4-108-6	Tai Po	HKTI
4-108-7	Po Man	HKTI
4-109-(0-7)	-	Unallocated

Signalling Point Code (SPC) Assignments

SPC Assignment	Services	Status
0000 xxxx xxxxxx (Note 1)	Basic Telephone Services	HKTC
0001 xxxx xxxxxx (Note 2)	STP, Special SP and SCP	HKTC
0001 0010 xxxxxx	Signalling Point	HKTI
0010 0000 xxxxxx	Mobile Telephone	HKTCSL
0010 0001 xxxxxx	Mobile Telephone	SmarTone
0010 0010 xxxxxx	Mobile Telephone	Hutchison
0010 0011 xxxxxx	Mobile Telephone	NW PCS
0010 0100 xxxxxx	Mobile Telephone	Peoples
0010 0101 xxxxxx	Mobile Telephone	Mandarin
0010 0110 xxxxxx	Mobile Telephone	HKTCSL
0010 0111 xxxxxx	Mobile Telephone	Hutchison
0010 1000 xxxxxx	Mobile Telephone	SmarTone
0011 0000 xxxxxx	Basic Telephone Services	HCL
0011 0001 xxxxxx	Basic Telephone Services	NT&T
0011 0010 xxxxxx	Basic Telephone Services	NWT
0100 xxxx xxxxxx	-	Unallocated
0101 xxxx xxxxxx	-	Unallocated
0110 xxxx xxxxxx	-	Unallocated
0111 xxxx xxxxxx	-	Unallocated
1000 xxxx xxxxxx	-	Unallocated
1001 xxxx xxxxxx	-	Unallocated
1010 xxxx xxxxxx	-	Unallocated
1011 xxxx xxxxxx	-	Unallocated
1100 xxxx xxxxxx	-	Unallocated
1101 xxxx xxxxxx	-	Unallocated
1110 xxxx xxxxxx	-	Unallocated
1111 xxxx xxxxxx	Testing	HKTC

Note 1 On 9.1.97, HKTC's 9 SPCs were re-assigned to HKTI, which are

0000 0000 111011	0000 0011 101110	0000 0011 110000
0000 0101 011010	0000 0111 101101	0000 0111 001100
0000 0111 010111	0000 0101 011011	0000 0001 001001

Note 2 On 9.1.97 and 3.2.97, HKTC's 5 SPCs and 64 SPCs under "0001 0010 xxxxxx" were re-assigned to HKTI respectively. These 5 SPCs are

0001 0001 001000	0001 0001 001001	0001 0001 001010
0001 0001 001011	0001 0001 000000	